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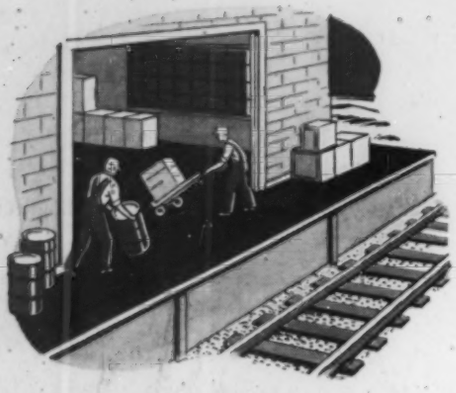

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COVER: A Reading Room, Lamont Library, Harvard University. Coolidge, Shepley, Bulfinch and Abbott, Architects. Paul Davis Photograph

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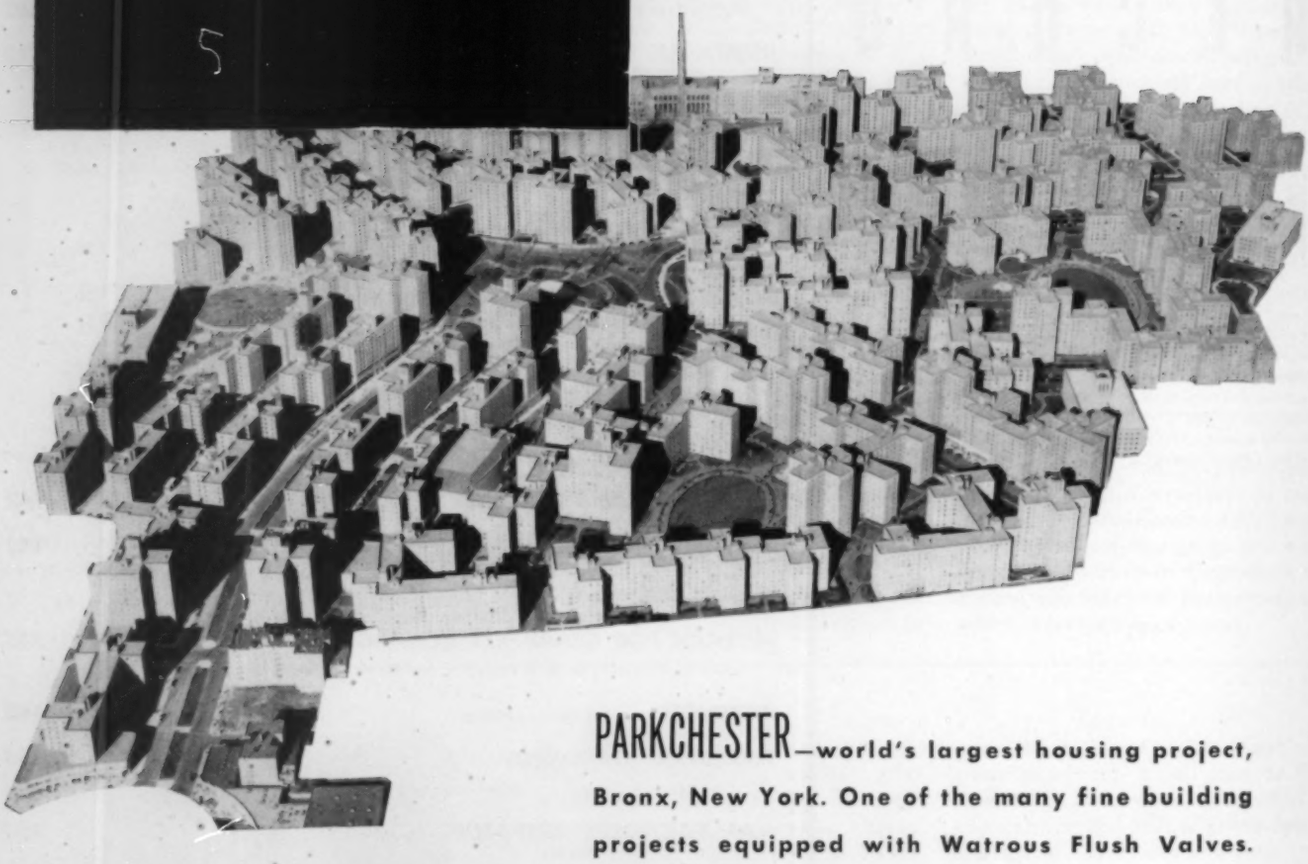

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Senate-Approved Housing Bill Causes Expected Turmoil in House; Party Cleavages Accentuated In Split over Economy in Government Spending

Overwhelming Senate approval of the bill S. 1070 once again projected the final showdown on a broadened national housing policy into the House of Representatives. Advocates of the Administration's comprehensive housing bill of 1949 discovered they had to compromise but little to secure Senate passage. But this was an old and familiar story — the third time in four years that Senators had left it to their colleagues in the House to make the final determination.

But the circumstances for handling the legislation in the lower chamber had changed this year in one significant respect. It would be impossible for the Rules Committee to keep the measure away from floor consideration as it had done in the past. It turned out that the real fight would be on the floor of the House where final amendments to the measure could stir up old enmities and continue to the bitter end the controversies aired in committee hearings.

At its early hearings on the bill, the House Banking Committee heard many arguments for approval and from such potent organizations as the American Legion and the Veterans of Foreign Wars, among others.

Opponents of the public housing features of the bill, so successful previously in stopping the legislation at the Rules committee, were inclined to "give up the fight" after hearing of the heavy affirmative vote in the Senate. At this writing, however, the House decision hangs in the balance. The vote on the new labor legislation had indicated that a rambunctious House of Representatives could handily erect a roadblock to the President's proposals through a Republican-Southern Democrat coalition.

Old Arguments Renewed

Meanwhile, all the long-standing pro and con arguments over the government's housing policies were dusted off and brought before the committees once again. Opponents repeated their charges that the Housing bills were socialistic in character, leading dangerously far in on the path toward outright government control of the building industry. In this connection, Herbert U. Nelson, executive vice president of the National Association of Real Estate Boards, went so far as to say that final congressional agreement on federal housing plans would mean certain destruction of the private building industry in the field of rental housing.

"As many as 200,000 dwellings per year could be built under the Senate-approved bill," he said. "This is more than the total number of rental dwellings built by private industry in the U. S. in 1948, a record building year."

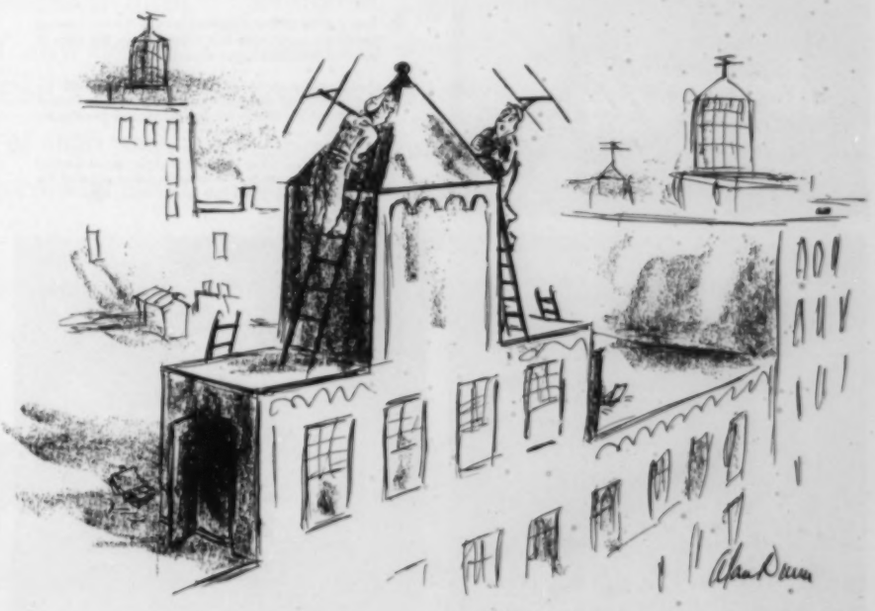
The public housers clung just as tenaciously to their own tenets. Their several statements to Congress argued that the need for a public housing program, and government "guidance" in research, farm housing, slum clearance and urban redevelopment, was never more evident than now.

In the debate before the House Banking Committee, the organized home builders attempted to persuade Congressmen that they are now meeting the needs of lower income groups. It was around this particular issue — federally-subsidized housing for those who can't afford current home construction — that much of the entire argument was centered.

Outside the committee room N.A.H.B. charged that Administration forces had employed delaying tactics in a deliberate effort to use a hoped-for industry failure to bolster their own cause. The Association statement read: "It has been said that there are some within the Administration and the Congress who hope that private enterprise will not produce a high volume of housing this year — that our failure will assure their objective of socialized housing as the alternative. With four long months having already elapsed, and a minimum of another month ahead without the necessary assistance of the private housing bill being available, it is difficult to disbelieve such assertions. In any event, the spring building season has passed, volume is down substantially and last year's production goal cannot be matched. This unfortunate fact is directly and in large part attributable to the delaying tactics of this Administration."

As the old arguments raged on Capitol Hill, the threat of a large-scale government participation in the nation's housing effort was making its mark on private building trends. It was George W. West of Atlanta, Ga., chairman of the Construction and Civic Development Department Committee of the U. S. Chamber of Commerce, who defined this influence for Congress. The threat of government housing, he said, is already acting as a deterrent on pri-

(*Continued on page 10*)



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THE RECORD REPORTS

(*Continued from page 7*)

vate building. People rightly hesitate to risk their capital in any field in which they must face the imminent possibility of government competition. He suggested that Congress could constructively stimulate private building by removing the threat of such government competition in the field of housing.

West joined with many other critics in asserting that the critical shortage in housing now has been overcome. Entering a new phase of postwar activity, the construction industry finds itself in a buyers' market. Competition is tougher. Buyers are getting better bargains. Profit margins and costs are being reduced. As always, the forces of a free market are compelling those adjustments which must be made if the economy is to operate on a sound basis. These wholesome readjustments should not be interfered with by undertaking a large program of subsidized government housing. Thus West summed up pretty clearly the attitude of the major portion of the building industry.

No Objections to Research

Very little objection to the housing research section of the bill, however, was voiced by the witnesses at the House hearings. This part of the bill eventually could have profound effect upon the trends of the construction industry. Its provisions are broad. Designed to promote progressive reductions in housing costs and at the same time to increase the housing supply through probing new techniques and materials, this research section also deals with inventories of need. Under it, the housing administrator would make his own inventories of urban and rural nonfarm housing needs and the progress toward meeting them, at the same time encouraging local authorities to make similar studies, surveys, and plans with respect to their own needs, markets and development.

The federal program of housing research as envisioned in Title III is generally acceptable to the building industry, though some concern has been expressed by those who favor definition of prescribed limits for federal participation. Thomas S. Holden, president of F. W. Dodge Corp., voiced that concern in a statement before the House Banking and Currency Committee which read in part:

". . . . Section 301 (a) of the bill defines the province of technical research as including development, demonstration and promotion of the acceptance and application, among other things, of new materials. It states that the contemplated research program may be concerned with new and improved types of housing components, building materials and equipment and methods of production and distribution of such materials as well as with matters per-

(*Continued on page 12*)

NEWS FROM CANADA

By John Caulfield Smith

Dwelling Code to Come First

Hope that uniformity of building by-laws can be achieved exists as the result of a recent meeting of building officials sponsored by the Division of Building Research, National Research Council, in Ottawa. The meeting was called to consider revision of Canada's National Building Code to meet the current needs of municipalities.

It was agreed that, since the Code does not deal specifically with residential construction, the first job should be to prepare a code for dwellings. This is to be followed by revision of the present condensed version of the National Code for small and medium-sized communities and, finally, by revision of the Code itself. The new Codes will be correlated and written in "layman's language." They'll be kept flexible enough to provide for new developments, since it is likely that a real reduction in construction cost can only result from the introduction and use of new materials and methods.

The Research Council's function is an advisory one only. It does not report to the Dominion Government, but to the Privy Council. The securing of uniformity of municipal building by-laws is a matter for provincial jurisdiction. During the coming months the Division of Building Research will call joint meetings of provincial and municipal officials to confer on the legislation required to enable cities and towns to adopt the new codes in by-law form. The results of the meetings will then be reported at next year's meeting of building officials.

Building Wages Rank Second

Construction workers got bigger hikes in pay in 1948 than any other employee group, with the exception of the one engaged in transportation and communication. The increase in building wage rates over 1947 was 13.7 per cent, just slightly above the general average increase of 13.0 per cent.

The accompanying table from the Department of Labor shows the six principal industrial divisions and the general average index numbers with percentage increases. The index is based on 1939 rates: 100.

Industry	*1948*	*Percentage Increase over 1947*
Logging	218.8	12.1
Mining	182.1	12.6
Manufacturing	206.4	12.6
Construction	176.3	13.7
Transportation & Communication	175.3	17.4
Service	183.2	7.4
General Average	196.3	13.0

Low Grade Lumber For Houses?

Solid cedar construction is being touted by British Columbia lumbermen as being competitive in price with ordinary wood framing. Purpose is to employ lower grades of lumber which are becoming increasingly difficult to market.

According to the newly formed B. C. Coast Woods Trade Extension Bureau, solid cedar construction is durable, strong, fire-resistant, and possesses insulating qualities. The Bureau advocates using a 2 in. plank wall, with exterior finish applied directly and interior finish applied on strapping to give an insulating air space.

Materials Inch Up In Price

A residential index developed by the Dominion Bureau of Statistics which records price changes for materials used in housing, as against the general materials index, permits new comprehension of the price movements of building materials.

Housing materials hold the lead. During February the index rose slightly. It averaged 230.4 compared with 230.0 in January and 229.0 in December. The index of general building materials rose from 203.8 to 204.3 in February. Both indices are based on 1935–39 figures: 100.0.

(*Continued on page 156*)

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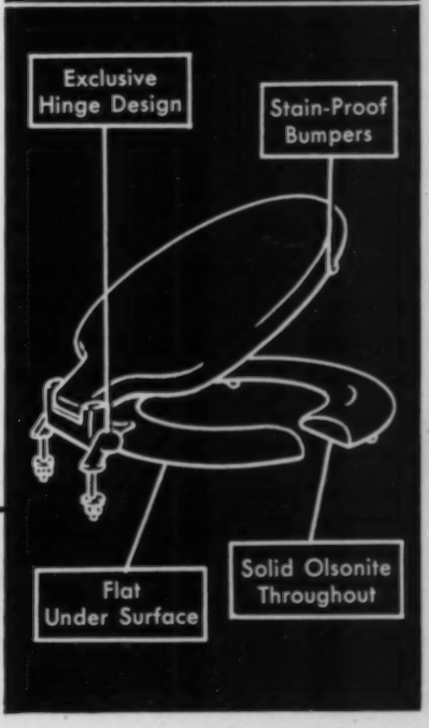

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THE RECORD REPORTS

(*Continued from page 10*)

taining to design, methods of assembly, testing techniques and performance standards. Creative research, involving invention and new product development, and promotion of the acceptance of new products, have always been the province of private enterprise, which has made substantial and continuous progress in this respect. I strongly urge that the text of Section 301 (a) be amended so as to define clearly the appropriate limits of technical research by government."

Mr. Holden recommended further that in formulating technical research programs, the housing administrator be required to consult with the National Academy of Sciences, the rightful agency, along with the National Research Council, to coordinate programs of scientific research.

Economy Is a Real Issue

Party line cleavages have deepened considerably on the economy issue. Airing of the joint committee findings on the President's Economic Report have spotlighted this in recent weeks. While signs of the smouldering Republican resentment toward "free" spending have long been evident, they climaxed only a month ago when Senate minority leaders secured enough votes to send back to committee the big Labor-Federal Security appropriations measure. It was recommitted for a 5 per cent trimming.

This marked a beginning. Senator Robert O. Taft, who has sparked the economy drive in the upper chamber of the Congress, said similar moves would be made on his side of the aisle on all appropriation measures; that the trimming-back feature would be attempted at least.

Actual money cut involved in the Senate's action would have amounted to less than $16 million since most of the items in the Labor-Federal Security measure are specifically allocated by law and therefore could not be reached by the action. The attempted cut was a comparatively small amount when weighed against the nearly $2400 million overall sum approved by the House in this bill. But the significance lay not so much in comparative totals involved as in the initiation of a pattern of economy strokes closely bound up

(*Continued on page 14*)

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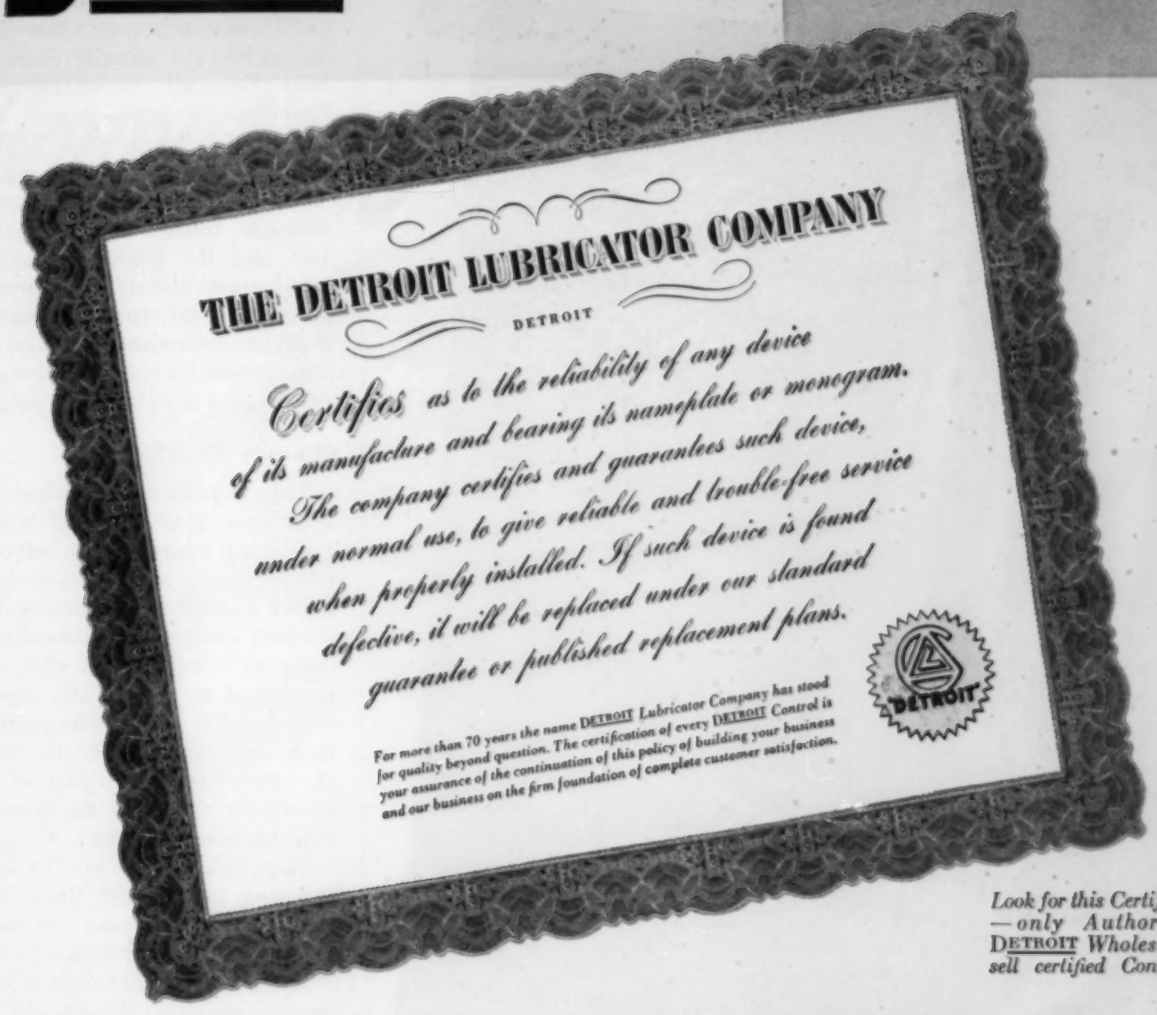
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(*Continued from page 12*)

with the whole matter of taxation. Taft struck directly at the Administration's desire to increase taxes when he summarized the minority views of the Joint Economic Committee on the President's Economic Report. He informed the Senate that Republican members of the committee reject the "basic philosophy" of the President's economic treatise. More specifically, Taft said the President ignored the broad powers already in his possession, particularly in regard to control of credit and determination of fiscal policy. The "crusade for more executive power" was branded unjustified and dangerous.

Minority View Specific

The Republicans anticipate that corporation profits will fall rapidly if volume of business progressively decreases. Capital investment would come harder under these circumstances. The minority interprets the committee evidence as indicating that while capital investment may be slightly more now than should be permanently maintained, there is more danger in the long run of under-investment than of over-investment as long as the present tax structure remains in effect.

Thus Taft summed up: "In fact, we feel that the greatest threat to the stability of our economy and the prosperity of the United States lies in the constantly increasing burden of government taxation and the difficulty of securing capital for the steady maintenance of employment in the capital goods industries so there may be a continued increase in consumption."

Construction Affected

These hoped-for economies in government spending certainly would shape an imprint on the nation's construction pattern. The House Appropriations Committee recommendation, adopted by the House, cutting 15 per cent from the huge civil works expenditures for fiscal 1950 — just in anticipation of lower building costs — had earlier shown industry something of the Congressional "frame of mind" on this subject. (Of course, the stipulation was hedged around with a monetary safeguard. The committee told the Army Corps of Engineers it could come in for supplemental appropriations in event it was caught short by the reduction in the fiscal year

(*Continued on page 16*)

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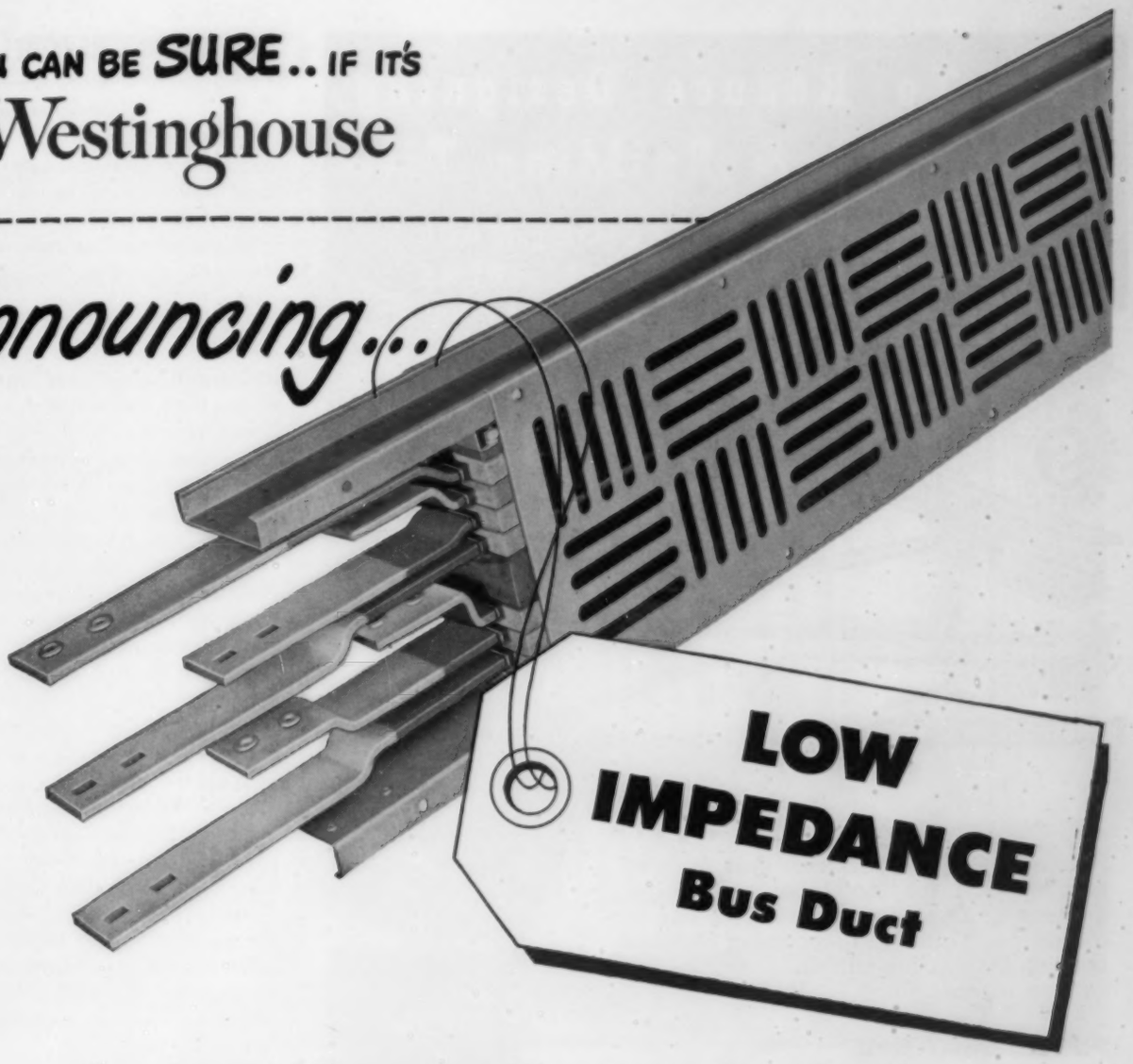

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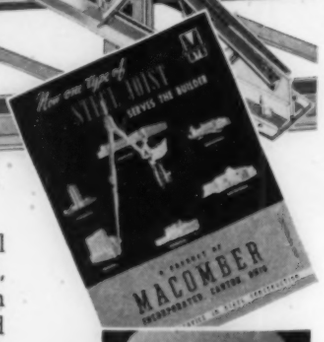

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THE RECORD REPORTS

(*Continued from page 14*)

ahead — and with reasonable assurance some deficiency requests would be granted.)

No leniency will be shown in the new attempt to tone down the growing government outlays, however.

While lambasting the Truman report on the economic state of things, and its implied ultraliberal methods for dealing with prospective developments, Taft's presentation of the minority report from the committee took a somewhat softer view of specific housing problems. One of the renewed recommendations was that the federal government take an active interest in the development of housing, particularly in the stability of the housing industry and the reduction in housing costs.

The pendulum of party doctrine had swung far to the other extreme on most issues in the majority report filed earlier. There was less difference shown, however, on the two housing points raised by Taft. The Democrats, in their report, had called housing "another industry in which private investment seems to fail at least in part to meet the basic needs of the economy." Furthermore, the majority findings accuse the home building industry of contributing significantly to the "instability of the economy as a whole" through its violent fluctuations in the past.

For these reasons industry is watching closely the outcome of this economy strife on Capitol Hill.

One needed to go no further than the recent credit ruling of the Federal Housing Administration for an exact illustration of what Taft meant in his reference to broad fiscal powers already in the hands of the Administration. Following hard upon the Federal Reserve Board's loosening of credit regulations was FHA's notification to all lending institutions that the 10 per cent cash down payment on Title I loans for modernization and repair no longer would be required. Though FHA didn't say so itself, this action was strictly in line with the Reserve Board's relaxation of credit requirements and a part of the government attempt to adjust its fiscal policies to the changing times.

Control Pops up again

Taft's Senate speech once again formulated the Republican viewpoint on the question of more federal controls.

(*Continued on page 18*)

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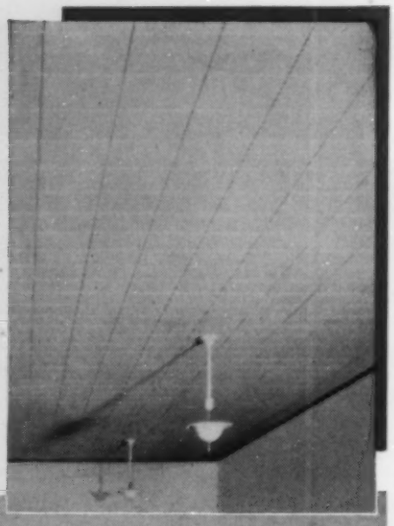

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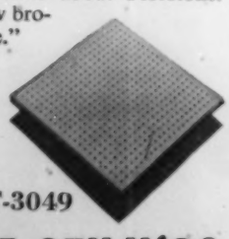

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THE RECORD REPORTS

(*Continued from page 16*)

Chief argument for added federal regulations in the President's report was seen by the minority to be a need to combat further inflation. The minority handled it in this way: "We see no justification for the claim that there now exists any serious danger of inflation. We believe that the economy has very largely adjusted itself through natural processes to a point where there is a reasonable balance between prices and wages, industrial prices and farm prices, savings and investment, consumption goods and capital goods.

"We believe that while business and profits and investment are perhaps somewhat out of proportion, they will both be rapidly adjusted downward as the buyers' market takes effect."

Shorts

• The long-awaited Supreme Court ruling in the rigid steel conduit case was announced, upholding the Federal Trade Commission order which virtually outlaws the basing point method of pricing manufactured products. It did nothing to remove the cloud of confusion that surrounds the government's policies in this matter. It served only to speed action by Congress toward declaring a moratorium on basing point cases in the courts for two years while Congress decides what action it wants to take to clarify the whole question of basing point quotation and freight absorption. The 4 to 4 Supreme Court decision affirmed the ruling of a lower court. This meant that the vote of the individual Justices remained unannounced and that no explanatory statement accompanied the ruling.

• A handbook prepared for the Veterans Administration by the Bureau of Labor Statistics says the outlook for construction employment is "good" over the next several years. This occupational outlook handbook, running 454 pages in length, predicts strong demands for construction will lead to a new high level of employment unless there is a marked decline in general business conditions. It anticipates that design and technological changes will continue to affect the relative needs for the different construction trades as the general demand for employees increases.

• Public Roads Administration bolstered its argument for an expanded

(*Continued on page 20*)

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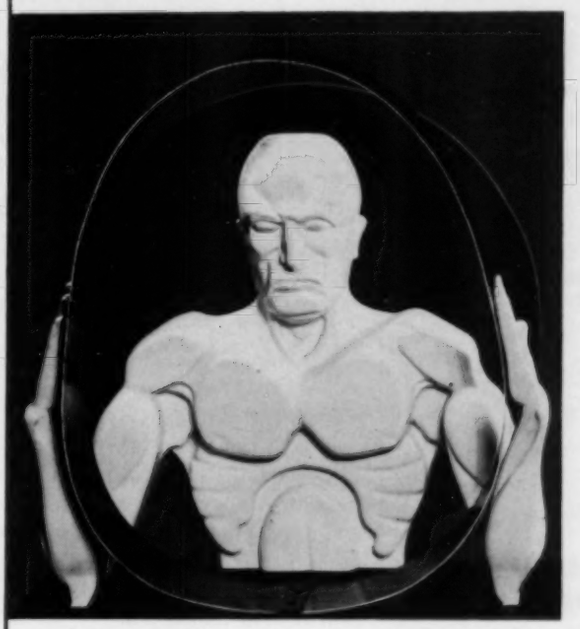

GLASS THAT BENDS within the elastic limits of the steel is demonstrated by this "mechanical man" flexing a special thin ring of SMITHway glass-fused-to-steel. The ring pictured here has been flexed more than *two million times* . . . yet the glass surface is still in perfect condition.

The Multiple Flex Test, pictured here, the Thermal Shock Test, and other conclusive demonstrations prove the durability and resilient toughness of the glass-surfaced heavy steel tanks of *Permaglas* Automatic Water Heaters. The fact that the diamond-tough inner glass surface will not crack or chip under even extreme shipping, installation, and operating conditions is also proved by the performance record of hundreds of thousands of installed units.

This dependable, built-in protection against rust forming in the tank is a major reason why *Permaglas* Water Heaters provide completely satisfactory automatic hot water service, at the lowest actual cost. For ALL the reasons why "*Permaglas*" means complete satisfaction, send the coupon today.

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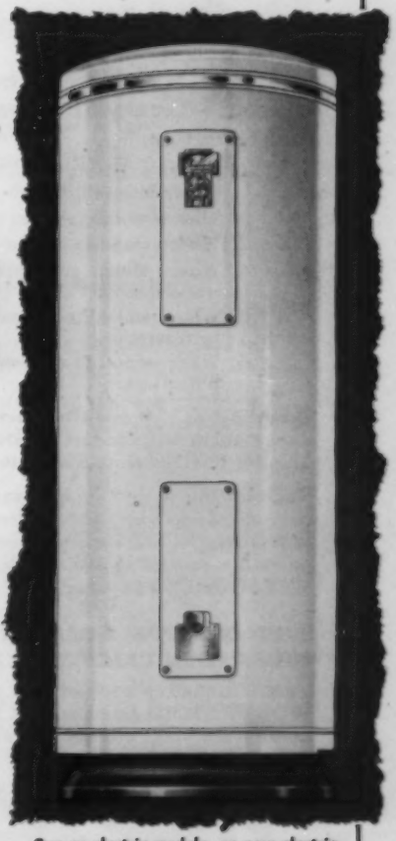

Gas or electric models, or new electric table-top, in sizes for all home needs.

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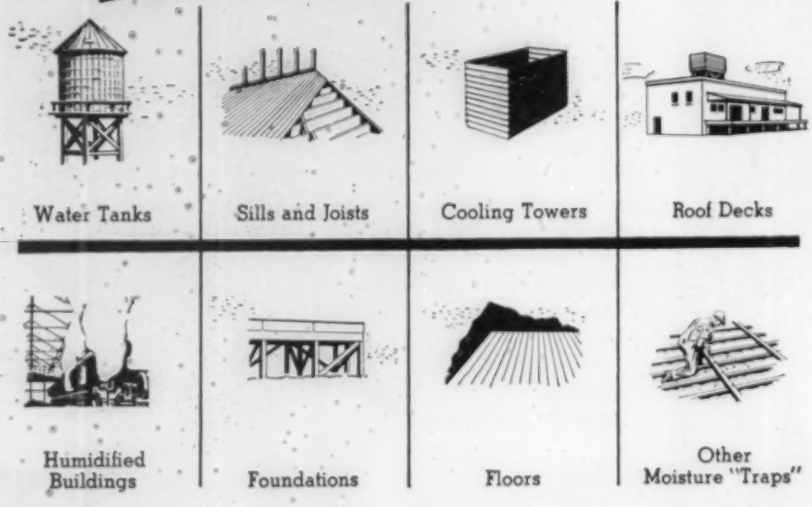

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5. Where walls, floors, ceilings are subject to condensation from refrigeration.
6. Where wood is exposed to moisture in artificially humidified buildings.

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THE RECORD REPORTS

(*Continued from page 18*)

highway construction program with announcement that the number of private and commercial vehicles crowding the nation's roads in 1948 had increased 8.7 per cent over 1947. There were 40,622,264 such vehicles registered last year, an increase of 3,261,801.

• Further indication of the drift with respect to supply and demand: the Commerce Department abolished export controls over some 500 items including lumber and flooring, plasterboard, wallboard, tile and structural clay products, iron and steel enameled bathtubs and other plumbing fixtures, cooking and heating equipment, home appliances and tools and builders' hardware.

• Federal Works Agency Administrator, Maj. Gen. Philip B. Fleming, was transferred by President Truman to the chairmanship of the Maritime Commission and Jess Larson, former War Assets Administration chief, was named to head the Works Agency.

• President Truman signed the first real housing law of the session — an Act enabling the Housing and Home Finance Agency to promote settlement and development of Alaska by facilitating construction of necessary housing in the Territory. A fund of $15 million is provided for the purpose.

• Congress tackled the question of too little housing for military and naval personnel here at home. A Senate Banking subcommittee held hearings on a bill by Sen. Wherry and others to establish a system of mortgage insurance aids for rental housing construction similar to those now available under Section 608 of Title VI of the National Housing Act. Deplorable housing conditions in and near military installations were described by Army personnel.

• The American Federation of Labor, or at least its Building and Construction Trades Department, came out in bold opposition to the government's economy housing program. Richard Gray, the department's president, told the House Banking Committee objections were based on restriction of space and the belief that the program advocates leaving out housing essentials such as ice boxes and ranges. Seven hundred square feet, said Gray, is not enough space in which to raise a family. He objected, too, to the lack of facilities in the

(*Continued on page 22*)

New, Beautiful "REX-LITE 40"

combines scintillating beauty with advanced performance!

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Good Looking—Good Lighting—Good Selling!

With the new "Rex-Lite 40" Fluorescent Units, your commercial lighting plan has a distinct advantage of functional design beauty combined with a unique, soft, pleasing quality of light.

"Rex-Lite 40" pendant units are rated as a semi-direct unit with prismatic, polysterene diffusing panel located above the two outside lamps which provide even distribution of the illumination in the upward zone.

"Rex-Lite 40" ceiling type units are rated as direct units with 5% of the light directed upward.

PENDANT TYPE DATA

Total unit efficiency **59%**
Total lumens above 90 degree zone . . **24%**
Side shielding . . . **27** degrees
End shielding . . . . **13** degrees max.
Maximum brightness inside shielded zone **1.7¢/sq."** (768 FTL)

CEILING TYPE DATA

Total unit efficiency **52.5%**
Shielding same as pendant unit
Maximum brightness inside shielded zone **2 ¢/sq."** (904 FTL)

Write now for complete **DATA BULLETIN** on the New Benjamin "Rex-Lite 40" Fluorescent Unit. **BENJAMIN ELECTRIC MFG. CO., DEPT. Q1, DES PLAINES, ILLINOIS.**

✔ **FUNCTIONAL DESIGN**

Eye-pleasing simplicity, streamlined styling, designed to harmonize with modern commercial decoration.

✔ **DIFFUSING ALL-PLASTIC PANELS**

For uniform illumination . . . designed to relieve disturbing contrasts. These panels also reduce accumulation of dust and dirt inside reflector.

✔ **HIGH LIGHTING EFFICIENCY**

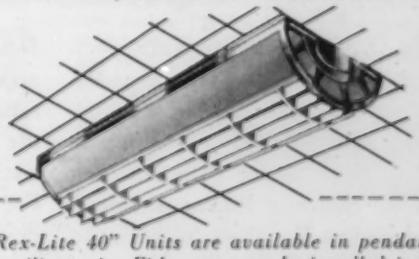
Porcelain Enamel reflecting surface, unequalled for high light output with maximum diffusion. Finest quality ballast and starter equipment reduces annoying flicker and minimizes costly service interruptions.

✔ **BENJAMIN *BUILT-LIKE-A-BATTLESHIP* CONSTRUCTION**

Maximum durability . . . an extra margin of strength in every part . . . maximum freedom from obsolescence and maintenance trouble.

✔ **LOW COST MAINTENANCE**

Simple soap-and-water cleaning restores Porcelain Enamel reflecting surface to original lighting efficiency. Porcelain Enamel cannot corrode, oxidize or deteriorate.



"Rex-Lite 40" Units are available in pendant or ceiling units. Either type can be installed independently or butted end-to-end to form continuous lines by using a specially designed coupling.

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Yes, in TV Stations (recently completed WBZ Radio and Television Center, Boston), hospitals, schools, homes, wherever better flooring is needed, Hood Rubber Tile has long been the choice of leading architects and designers. Hood's exclusive *Super-Density* eliminates dirt-catching pores making maintenance easier . . . this same feature means longer life, and the wide color variety means added charm and beauty for every interior. For complete information, see Sweet's or write for full color catalog today.

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B.F. Goodrich
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HOOD ASPHALT TILE

THE RECORD REPORTS

(*Continued from page 20*)

housing agency for enforcement of current FHA standards of construction. He observed: "What's the good of having requirements if the speculative builder gets away with murder and the buyer finds that maintenance and upkeep costs are almost equal to his capital investment?"

• Spokesmen for the C.I.O., testifying on the housing bill in the House, said national defense officials are preparing to give serious consideration to the Reuther Plan. Walter Reuther, chairman of the C.I.O. housing committee, recently proposed to President Truman and to Congress that surplus war plane manufacturing plants be converted to the output of prefabricated housing and held in a stand-by condition for the production of armaments in event of emergency.

• School construction would be greatly stimulated under terms of a new bill introduced by Senator John Bricker (Ohio). It would authorize $250 million in the next fiscal year for construction of public schools and $3 million for surveys and planning, the money to be apportioned to states in the ratio that their school populations compare to the entire school population of the country. The Federal Security Agency would administer such a program.

• New Committees on Waivers and Compromise are being set up in regional Veterans Administration offices to rule on the handling of veterans' debts arising from defaulted home loans. Debts involved would be the position of the loan guarantee that VA had to pay the lender after foreclosure. Nearly 1.5 million ex-servicemen have secured homes under the GI Bill of Rights.

• The American Road Builders' Association estimates that programs of the 48 states and the District of Columbia will call for construction of 34,271 miles of state and federal aid highways in 1949. Estimated cost of construction for the work will be $1,265,692,000.

• Another antitrust suit was added to the fast-growing list of Justice Department moves in the construction field. In federal court in Detroit, the Besser Mfg. Co., its president Jesse Besser, and a subsidiary firm, all engaged in the manufacture of concrete block machinery, were charged with monopolizing interstate trade and commerce. Said

(*Continued on page 172*)

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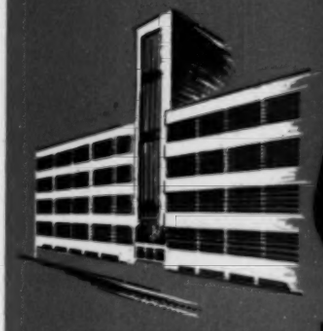

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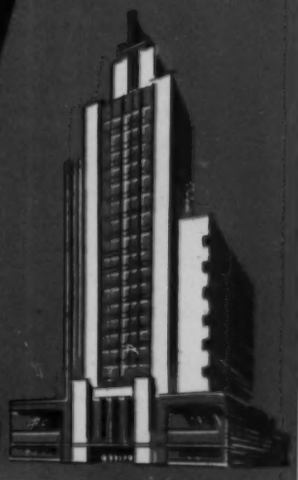

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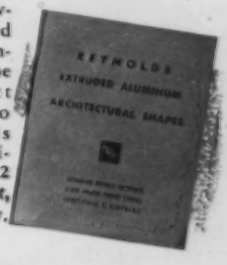

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LETTERS TO THE EDITOR

HIDDEN TALENT?

Editor:

First, I would like to congratulate you for conceiving the excellent idea of "Revelation by Competition" and also on the very handsome presentation of its results, which, indeed, reveal not only the quite apparent talent of many of the competitors, but are especially revealing in the professional design leadership and its influence on the younger generation.

I have read and studied your presentation with profound interest and I hope that you will find it in order if, in a frank and I trust constructive manner, I acquaint you with my reactions, which might or might not echo the reactions of others in our profession.

What puzzles me most are the principles which guided the jury in its judgment. I believe that one way to clarify the issue is to ask the jury to answer some of the questions arising in my mind while studying the published drawings.

In premiating the three designs, did not the jury also premiate the principle of designing from the outside in?

How can the winning design be excellent if it negates practically every single function which the structure is supposed to house?

How can a control office function from a mezzanine?

How can an inaccessible wardrobe in conflict with traffic to toilets and office, function?

How could you overcome the noise and sound problems and interferences with eight-foot partitions open above?

How can you control the light-glare and heat problems arising out of the glass walls in an economical way, etc. etc.?

One could go on with innumerable similar questions, the defects in the winning designs being so obvious and so general.

Did not the jury premiate just a "stage setting," a "décor," or a "sculpture," which has no relation to the human, simple and matter-of-fact functions of an American community center?

Wasn't the approach just the opposite to the logical approach of complete humility, searching for the simplest, most economical, direct, honest and natural solution, hoping as a reward for this attitude, to create something with lasting values and therefore beautiful?

Aren't the three premiated solutions rather eclectic attempts to do something striking, extraordinary, original, from precedents created to excite the pampered and degenerate palates of just a few?

Will not the judgment leave the younger generation even more confused than it was up to now as to the validity of the doctrines as taught in schools and practiced in judging competitions, upon entering the actual practice of the profession and its realities?

Does the jury realize the gravity of their responsibility in acting as "arbiters of beauty" and "experts of approach" and the amount of harm they might cause by actions prompted by other considerations than those of an impersonal and detached attitude?

ANTONIN RAYMOND, A.I.A.

Editor:

I have carefully studied the winning entries in the Hidden Talent Competition as published in last month's RECORD and as exhibited in The Museum of Modern Art. The interpretation of the modern architectural concept thus offered by capable judges, has left me completely confused. . . . [*Here followed detailed criticism of winning designs. Ed.*]

In general, the winning solutions cast serious aspersions on the essence of modern architecture. They prominently indicate that the modern concept, as interpreted by most, is no true concept of ideals at all, but rather stems from the exploitation of a commercial fad. The intention is to build a heap of esthetics with the terms in vogue, and place humans in it, to live. The point of error is that the esthetic interest dominates and overwhelms the logical architectural solution instead of resulting as an outgrowth of the correct combination of the required structural materials.

It seems obvious to me that the competition has not succeeded in discovering any hidden talent, but rather has uncovered the fallacies and confusion prevalent today in the field of architecture. The realization of this and the consequences may very well help to stir these misconceived ideologies out of their utopian slumber and onto the road of logical architectural thinking. Thus only with this negative result has the competition served any significant purpose.

HERBERT SHALAT
Student, Cooper Union, N. Y.

Editor:

The publications of the drawings for the Hidden Talent Competition are indeed revealing — yes, revealing to the extent that even the distinguished members of the jury seem to be in a state of mental confusion and uncertainty in their architectural thinking. . . . [*Here followed detailed comments on the Report of the Jury. Ed.*]

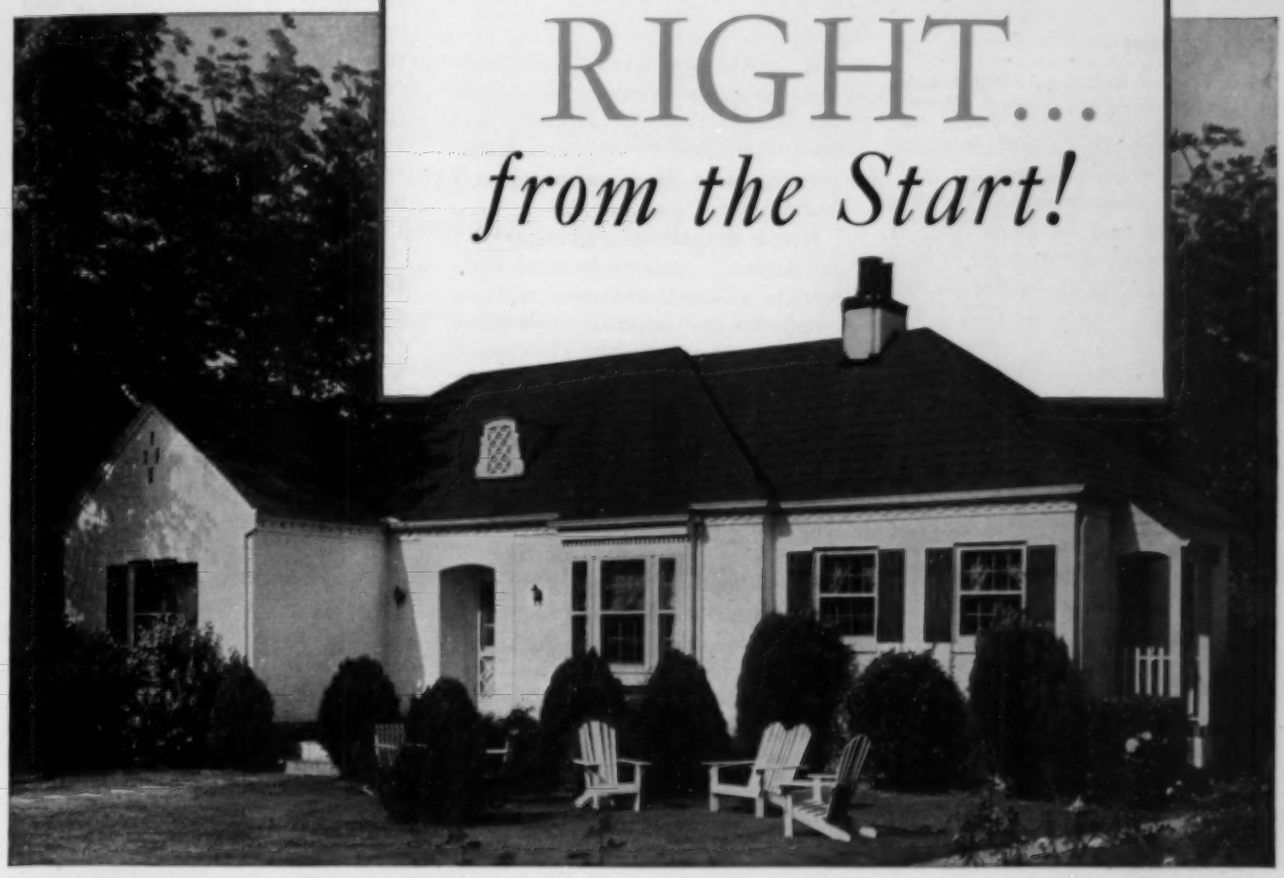
While the jury is the only group in a position to state that "most of the designs were humdrum in the extreme and the quantity of gold which they unearthed seemed shockingly disproportionate to the dross," it is evident that the selection of the premiated designs by so eminent a jury does not really add to the clarity of thinking in the field of architectural endeavor as many of us had hoped it would, but rather has that judgment added to the confusion and chaos. We might well ask, "what do we want" and "how are we going to achieve what is wanted," and "where are we headed for in the field of architectural design."

To ask these questions is not to be pessimistic about the future of architectural achievement, but rather is it to stress the fact that we are striving, groping, yearning for a new day in architecture. That day has not arrived yet; and perhaps it is fortunate that it has not. The whole atmosphere is surcharged with the spirit of experimentation, restlessness, and doubt. Since that is the kind of a world we are living in, the reflection of these uncertainties in our architectural thinking is neither surprising nor inconsistent.

Whether or not the results of this competition will enable us to "take stock of the current approaches and emphasis with an eye to clarifying our own thinking and establishing a new and reaffirmed direction" remains to be seen. Although the deliberations of so illustrious a jury, as evidenced in the selection of the premiated designs, have not clarified the architectural atmosphere very much, it is to be hoped that similar competitions will be conducted more frequently in the future than in the past.

P. M. TORRACA
Associate Professor of Architecture
University of Florida

RIGHT... *from the Start!*



ARCHITECTS: Sherlock, Smith and Adams, *Montgomery, Alabama*

At Home!

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FREE—This new booklet, "Good Application Makes a Good Roof Better". A 24-page booklet, prepared by the Engineering Committee to summarize the latest recommended application practices. A valuable check list of details to watch in job supervision. Copies available from member companies or direct.

Design is much more than lines and planes —it is materials, depth, texture, pattern and color. And design is served best when all of these elements can be known and blended—right from the start. One reason why asphalt shingles blend so well with modern design is that many architects approach their design problem with these adaptable shingles in mind.

Actually, of course, asphalt shingles fit the traditional as perfectly as the contemporary. They are at home with any style, any size house—but most especially so when they have been made to "feel" at home on the designer's board.

There are many practical advantages to recommend asphalt shingles in current residential building—such as economy, low cost application, fire-resistance, durability.

But with these must be included the important design advantage of adaptability in pattern, texture and color that makes them "belong" with today's styling of either traditional or contemporary.

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REQUIRED READING

STEEL DESIGN

Design of Steel Buildings, Third Edition. By Harold D. Hauf and Henry A. Pfisterer. John Wiley & Sons, Inc. (440 Fourth Ave., New York 16), 1949. 5¾ by 8¾ in. x+280 pp., illus. $5.00.

For the architect who must (or likes to) figure his own structural steel, or wishes to review what he has forgotten and to bring himself up to date; and for text book use by students, this third revised edition is a clear and concise guide.

The purpose of this book, as stated in the preface to the first edition, is to present the general principles of structural design as applied to the more common types of buildings such as apartment houses, offices and school and other institutional buildings. The general scope and method of presentation of the earlier editions have been retained in this revision, but the material on welded construction has been greatly expanded and now forms a separate chapter. In addition to a general discussion of welded framing connections, the application of welding to the design of plate girders and roof trusses is treated in detail.

All the examples in the text have been revised and made consistent with structural shapes now available.

The chapter on the design of beams has been rewritten extensively, and a more detailed treatment of the use of safe load tables included. As an aid to persons studying outside the classroom, answers to certain selected exercise problems have been given in an appendix. All exercise problems are new.

UNIVERSITY LIBRARIES

Planning the University Library Building. Edited by John E. Burchard, Charles W. David and Julian P. Boyd. Princeton University Press (Princeton, N. J.), 1949. 5½ by 8¾ in. xvii+145 pp., illus. with plans. $2.50.

No architect should think of planning a university library building without a thorough reading of this meaty, informative and stimulating volume. And it should be kept at hand for constant reference as each of the perplexing problems comes up for solution in the process of producing an integrated design. In it is a wealth of vicarious experience that will prove invaluable. It is a comprehensive study, logically presented, that takes up in order the place and functions of the library, the problems of policy and administration, desirable space arrangements, stack arrangement and construction, air conditioning, modern illumination, technological problems and trends, the librarian and the architect, and finally provides an excellent bibliographical essay. Diagrammatic plans of fourteen libraries are included.

Here is an exchange of the experience and ideas of a nationwide group of librarians, architects, and engineers. These members of the Cooperative Committee on Library Planning, which was financed by the Rockefeller Foundation, consider both practical matters of physical construction and vital factors of policy and administration.

The editors, who have here summarized the Committee's findings, consider every aspect of library planning. One of the most important and often neglected questions — how to get architects, librarians and administrators working as a team — receives strong emphasis here. The latest and most ingenious methods of illumination and air conditioning are discussed. Such ideas as windowless libraries and all-glass walls come up for appraisal. The editors consider how to plan a building for flexibility and growth, the merits of functional versus traditional architecture, and many other problems. In effect, therefore, this book provides a check-list of all matters to be considered by those planning to build or wishing to improve a library.

SIMPLE STRUCTURAL PROBLEMS

Elementary Structural Problems in Steel and Timber, Third Edition. By C. R. Young and C. F. Morrison. John Wiley & Sons, Inc. (440 Fourth Ave., New York 16), 1949. 6 by 9¼ in. xiii+329 pp., diagrams. $4.50.

This book is not intended to be a handbook or text book, or for use in routine office practice. It is written for the man who wants to test the knowledge of design theory he has already acquired. Problems involving the design of beams, girders, trusses, and other timber and steel structures are presented and solved in detail, so that the reader can see exactly how such problems are handled in industry. For readers who want background information on any problem, the authors have included references to the standard books on structural theory.

The most extensive revisions in the third edition have been made in Part II, "Timber Structures," which has been completely rewritten and expanded 25 per cent. As a result, Part II now gives a complete coverage of modern timber engineering. Recent developments in ring-connected construction are covered in several chapters, while Chapter 16 shows the design of a single, simple, segmental, glued, laminated wood arch of 48-ft. span. Chapter 16 was written by Professor C. F. Morrison, who did special research work on glued, laminated timber members for the Forest Products Laboratory of Canada in 1944.

TOWARD BETTER CHURCHES

The Church Builder. By Elbert M. Conover. The Interdenominational Bureau of Architecture (297 Fourth Ave., New York 10, N. Y.) 1948. 6 by 9¼ in. 192 pp., illus. $2.75.

It always pays an architect to know what his client is thinking about, and what advice he has already received from various sources. This foreknowledge of what the client has been exposed to in the way of example and advice, his preconditioning so to speak, makes the architect's task of determining requirements, present solutions, and dealing with prejudices or preconceived ideas, much easier than would otherwise be the case.

Undoubtedly pastors and church boards and building committees of Protestant churches will get much, or most, of their information about church building from this comprehensive book by Elbert M. Conover. Mr. Conover is an authority on church building problems, and these problems are many. He writes from 25 years full of experience in church building guidance as he is the director of the Interdenominational Bureau of Architecture. He realizes fully that the architect is an essential factor in successful church building, and he describes for the layman what is involved in architectural service, and the ethics involved. This will undoubtedly be enlightening to church building committees and is a distinct service to the architectural profession.

The author also understands church building committees, for he says:

"Too often, the architect is invited to church meetings where he is bombarded with irrelevant questions and instructions, criticized for his 'large' fee, and forced to listen to arguments between the church people present on various features of the building program.

"Before the church decides on the floor plan, some trustees will persist in discussing the pitch of the roof or the type of heating. Brother architect goes home with a headache, manages to remain cheerful the next day when a com-

(Continued on page 30)

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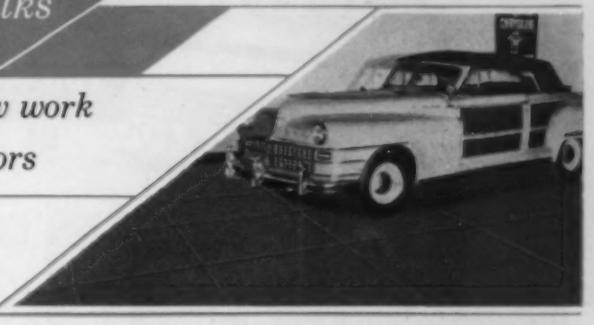

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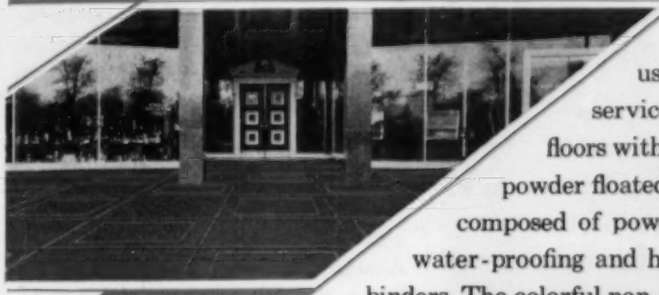

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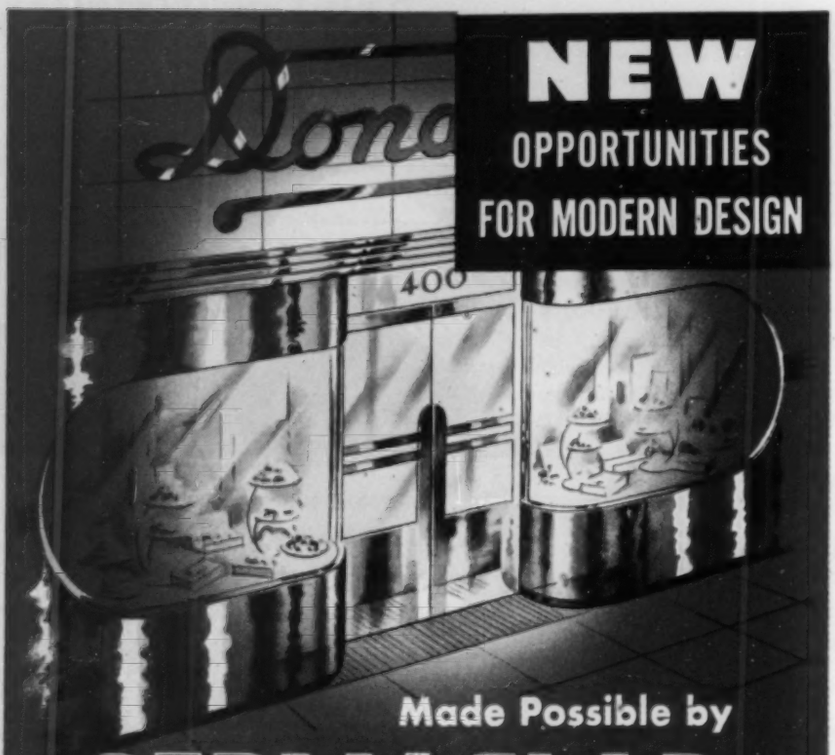

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REQUIRED READING

(*Continued from page 28*)

mittee comes, unannounced, to talk about the kitchen, not waiting to give their instructions in writing through the planning committee."

Even the experienced architect will gain from this volume a new insight into the requirements of a really functioning church.

Most of the illustrations quite naturally depict churches or features of churches in traditional styles. The author has evidently tried to choose the best "modern" or contemporary designs that he could find, as well as traditional examples. However, as one peruses the illustrations, one must conclude that there is a great opportunity for design talent in the ecclesiastical field.

This book will not only help pastors and church building committees in understanding their own problem and the architect's, but will also enable architects to understand better the problems of the church authorities. The book would have been even more useful as a reference work if it had an index.

SAFER HOMES

Safety for the Household. U. S. Dept. of Commerce and the National Bureau of Standards. Circular 463. U. S. Government Printing Office (Washington, D. C.) 1947. 6 by 9⅛ in. x+190 pp. illus. $.75.

The principal hazards to safety in the home, and the means for eliminating or reducing them are discussed in detail in the new edition of *Safety for the Household*. While written mainly for the average present-day household, this booklet provides information that is also of value in the design and construction and safe operation of schools, hotels, hospitals, stores, and industrial plants.

Chapters on gas, building construction, refrigerants, fire prevention, heating equipment, plumbing, fire extinguishers, electrical equipment, and other special items have been prepared by qualified specialists from the various sections of the Bureau dealing with these particular subjects. The chapter on suggestions for building a home and the discussions of hazards in the use of hand tools and machinery will be found especially helpful. In recent years new trends in home design, new household equipment, and modern toys have brought new sources of accidents. This book is an effort to keep pace with the hazards introduced by these developments.

(*Reviews continued on page 212*)

ARCHITECTURAL

RECORD

DESIGNERS EXTRAORDINARY

ONE would have to search like an FBI agent to find an architect who would be a mite hesitant about suggesting improvements in the design of most anything under the sun, from automobiles, armchairs and advertisements to velocipedes, yo-yos and zithers. And we'll bet they could provide better designs for them, too! Then why don't they? The answer is they do (see pages 102–115). But even these designs can and will be vastly improved as time goes on.

The same design ability, approach and technique that goes into the design of buildings is essential to better design of manufactured products — and some of the more farsighted producers have realized this and have added architecturally trained men to their staffs or have commissioned them to produce advanced designs. Also most of the industrial designers and stylists that specialize in designing for industry employ men and women having architectural background and experience.

Only the addition of two other factors to the present knowledge and skills of the architect seems necessary to success in the broad field of designing useful objects. These are, first, salesmanship, and second, knowledge of special materials and manufacturing processes and techniques. But salesmanship has not often been the forte of the designer himself. Salesmanship seems to be a flare for dramatic showmanship, plus personality, plus the ability to convince and persuade — with perhaps, or occasionally, a pinch or two of impressive and mystifying mumbo-jumbo. Salesmanship may be more difficult to acquire than the second factor, for unless it comes naturally and enjoyable to the designer it might better be delegated to a partner in the enterprise with a bent in this direction.

The second — knowledge of manufacturer's materials and techniques, is "duck-soup" for the architect, for his mind is trained to observe, analyze and discriminate. And this established process of his, coupled with his creative imagination, almost inevitably suggests new and better forms for the functioning of the product and for simplification of the manufacturing processes involved. We can quote chapter and verse and even picture to prove that statement. Not only have architect-designed products both functioned better and looked better, but they have been more economical to produce and maintain. What more could a manufacturer ask?

But the architect must ask himself whether the time and effort involved in making the necessary contacts with manufacturers will prove worthwhile to him, or whether, in his case, it might better be employed in cultivating his own specialized field of planning and building. We believe that more and more architects will design *both* the buildings and the things that go into them — furniture, fixtures, fabrics and all the rest — not only the custom-made, but the mass-produced. For architects *are* designers extraordinary!

Kenneth K. Stowell

EDITOR

LAMONT LIBRARY, HARVARD UNIVERSITY

Coolidge, Shepley, Bulfinch & Abbott, Architects and Engineers

TO THOSE planning the Lamont Library, placing a building of organic architecture into Harvard Yard was not the primary problem, but to those less concerned with functioning it did seem the major consideration. Announcement that the Library was to be built in the Yard evoked a great volume of voluntary opinions, some for colonial architecture, some equally positive for modern.

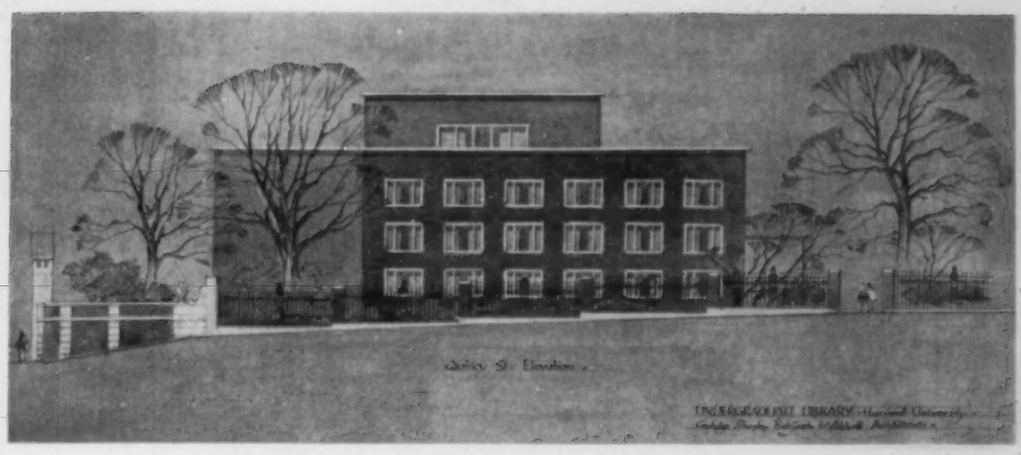
Thomas W. Lamont, whose gift made the building possible, expressed the hope that it would "adhere as much as possible to the general spirit of the architecture of the Yard," which obviously is quite different from a simple request for colonial styling. In a letter to him Mr. Shepley made this interesting observation:

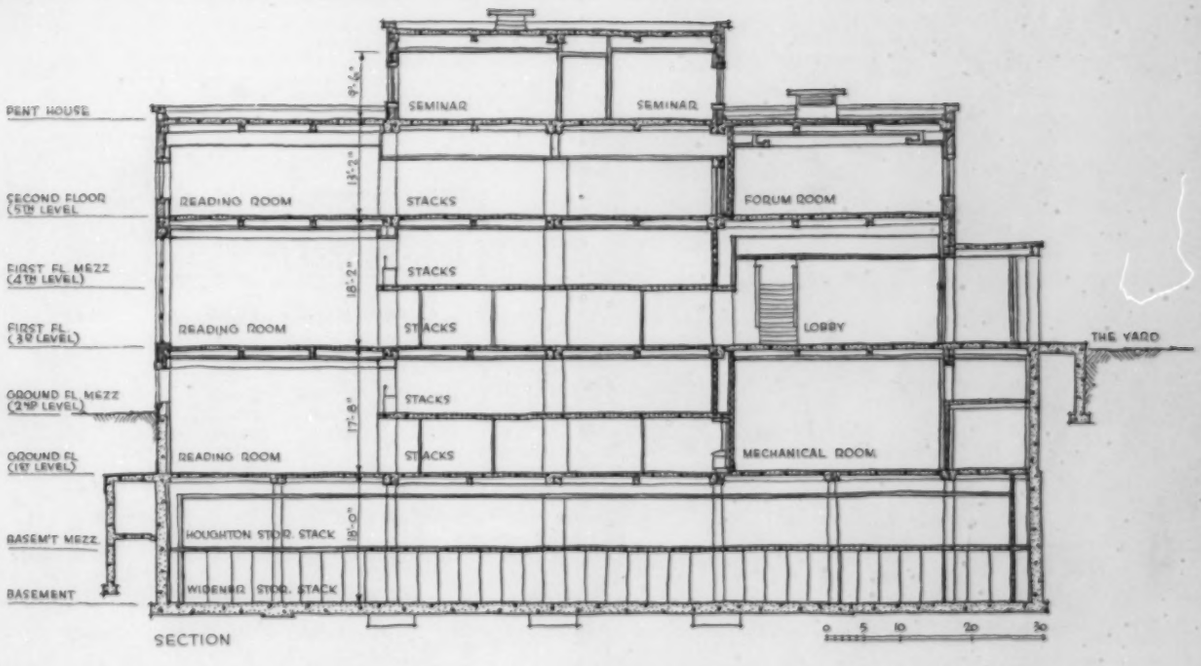
"Actually that part of the Yard where the Library is to be contains a very varied assortment of buildings of different types. Widener, Emerson and Robinson are Classic, Sever is Richardson Romanesque, the Union is English, the President's House, Houghton and Wigglesworth are modern Colonial. Many of these are distinguished examples of the style in vogue at the time, and thus make an interesting historical record. Most of them were carefully designed to fit into the general spirit of the Yard. The Library is being studied with great care in this respect . . ."

The end of this little story comes in a memorandum from the librarian, Keyes D. Metcalf, to Mr. Shepley: "I had an opportunity to talk with Mr. Lamont, Sr. yesterday, and he asked me to report to you that he had seen the model and the plans and that he likes them . . ."

Mr. Shepley's own comments on the building warrant exact quotation: "The architectural treatment is modern, but the exterior has been carefully studied in proportions, fenestration, and materials to make it fit in comfortably and naturally with its traditional surroundings. Exaggerated modern features and affectations have been avoided and the treatment restricted to a simple and direct expression of the interior arrangement and philosophy, with special emphasis in certain appropriate cases."

He has illuminated this summary with many specific details, but these are best understood in the light of what the planners of the Library *did* feel was their pri-





SECTION

mary concern. Shepley gives the basic program thus:

"The philosophy on which the functioning of the Library was based required, first, that it be conveniently located and inviting of access. It should be on one of the main undergraduate traffic routes, and there should be no flights of steps to climb to the entrance or monumental vestibules or foyers to traverse before coming to the books. Second, once within the Library, the student should find the entire book collection as accessible as possible. The arrangement devised by the Librarian to accomplish these requirements called for long reading rooms on three floors on one side of the building paralleled for their entire length by open stack areas down the center. Specialized reading rooms, such as those for reference, browsing, and the modern poetry collection, were to be on the opposite side of the stack area. As a result, students would pass through the stacks in going to the reading rooms or in passing from one reading area to another."

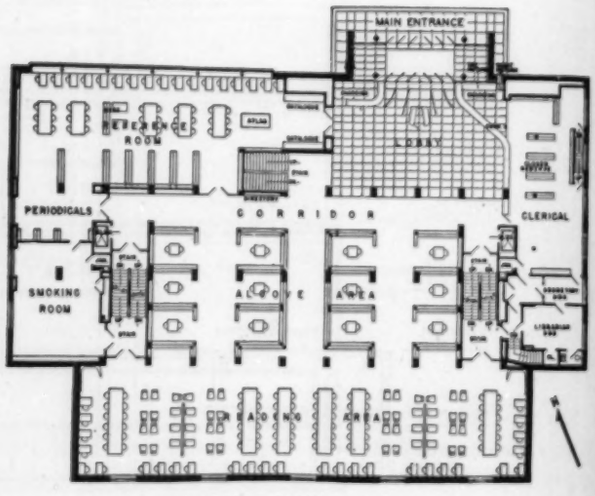
This general concept of the building was decided even before consideration of a site. Four sites were then measured against the building requirements, and the architects made a preliminary sketch for each of them. One site was simply too small; two others were adequate, but not so fortunately located as the one finally selected, on the Yard at the corner of Quincy Street and Massachusetts Avenue. This one offered difficulties of contour and was not spacious, but did have the advantage of good relationship to associated buildings.

The difficulty of the size of the site was solved by

THIRD LEVEL

Nothing got quite so much study as lighting. This particular installation, in the lobby, was designed to simulate the daylight just beyond the wide glass entrance doors. Thus lighting becomes a part of the invitation to the student extended by the open aspect of entrance and doors, coupled with a lack of steps or monumental vestibules to clothe the search for knowledge with cold austerity

Gottscho-Schleisner Photos



THIRD LEVEL PLAN (First Floor)

sinking one of the three main reading room levels below ground level, and by use of further basement space for large stack areas, these being connected to other library buildings. This device makes it appear as a two-story building from the Yard; also it limits the stair climbing to one flight up or down from the Yard entrance.

The large reading areas, coupled with the stack height requirements, were factors of considerable importance in fixing the design of the building. Now for Mr. Shepley's more detailed tracing of these architectural factors:

"Emphasis of interior features in exterior treatment may be seen in the projection of the main entrance motive beyond the face of the north front, increasing the importance of the entrance and giving a valuable accent to an otherwise long unbroken façade. This entrance is very wide, almost the width of the lobby inside, and consists of six glass doors in a glass wall, flanked by limestone buttresses carrying a thin roof slab. The glass wall is recessed several feet from the buttresses and roof to give a sense of shelter. The wide glass entrance tends to lessen the barrier between exterior and interior; and to enhance this effect the lobby lighting has been made to simulate daylight. Furthermore, the interior arrangement is such that from without one may look through the lobby into the stacks, and beyond into the reading room on the farther side of the building.

"Next to the main entrance is the Reference Room

Paul Davis Photo

THIRD LEVEL

Stacks on main reading levels are arranged in alcoves, each with a small table and chairs for students who must quickly consult a number of references to locate their material. Reference room, third level, below, has north light, can afford a great unshaded window running full length

Gottscho-Schleisner Photos

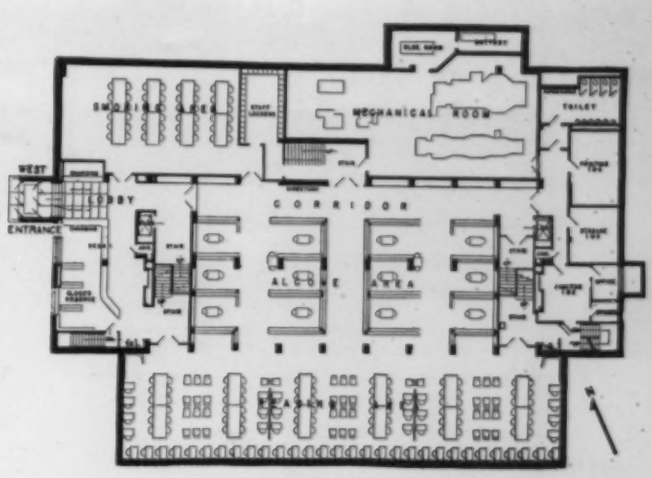
with its great north window overlooking the Yard and offering to all those passing a clear view into the Library. This window, occupying practically the whole side of the room, can afford to be spacious as it never receives any sun, while all the other windows on the main floor have to be shaded on sunny days.

"The main floor reading room on the south side is emphasized on the exterior by tall windows extending from floor to ceiling, spaced twice as far apart as the windows of other rooms. This gives an effect of dignity that relates well in scale with the Union, and particularly well with the Bacon-Roosevelt Gate.

"One important feature of the exterior is the free use of large unbroken wall surfaces. This is made possible by the fact that it is preferable to light the reading areas from one side only. The introduction of these wall areas at the corners of the building has the effect of breaking up the apparent bulk of the building by interrupting the continuity of window treatment. This interruption has the additional advantage of permitting each elevation to be treated appropriately and honestly in itself without the necessity of reconciling it too closely with its neighbors. The result has been an exterior with more interest and vitality than would otherwise have been

FIRST AND SECOND LEVELS

The so-called First Level is the first of three main reading area levels, and is virtually a basement story, because of site problems, as Mr. Shepley has explained in the text. Air conditioning, lighting and ventilation are depended upon to make this just as comfortable and pleasant as upper areas. The Second Level is a mezzanine of the first level, stacks determining ceiling heights



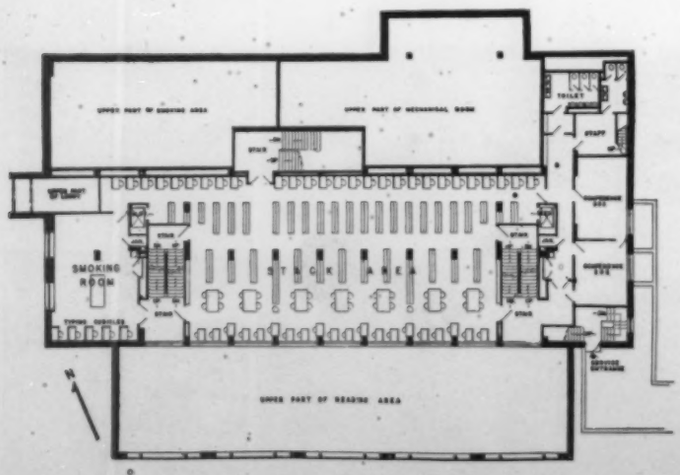
FIRST LEVEL PLAN

SECOND LEVEL

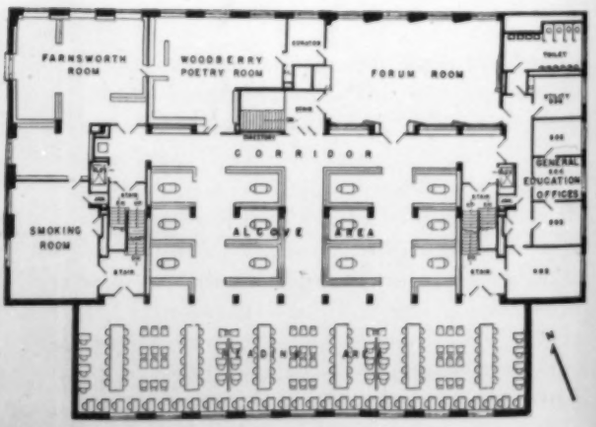
Photograph above shows typing cubicles in the smoking room, second level. Smoking room lighting shown is typical of that in eight-foot ceiling areas

possible." Special rooms have contributed much to the comfort and utility of Lamont Library (the three photographs across the two following pages show the Woodberry Poetry Room, with furnishings by Alvar Aalto). There have been many questions such as: should smoking be permitted, or talking, or typing? How much for comfort, for avoiding monotony? What special activities are within the library province? A great many such questions were settled quite nicely by providing a

SECOND LEVEL PLAN (Fourth Level Similar)



FIFTH LEVEL PLAN



FIFTH LEVEL

Furniture throughout is of special design worked out by the architects in cooperation with the librarian: simple and as light as is consistent with comfort and sturdiness. It is light in color also, to keep brightness contrasts low. Indeed all color schemes were chosen for this main purpose. Easy chairs are in leather, tan, red or green. Bookcases are finished in enamel of medium value—old gold on ground floor, dull red for first floor, gray blue for the second. Floors are of cork in medium brown. Furniture for the first floor, by the way, is of special design by Alvar Aalto, manufactured in Sweden and assembled in this country

Gottscho-Schleisner Photos

Above, the Woodberry Poetry Room has furniture and equipment by Alvar Aalto

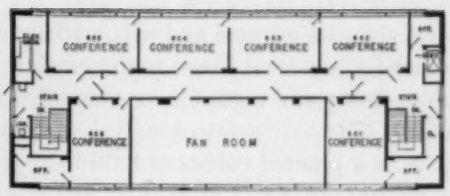
The Forum Room, on the fifth level

Gottscho-Schleisner Photos

variety of rooms, of accommodations generally, and a change of pace through main areas. Each of the main levels has smoking rooms, where the chatter can be less restrained. Reading areas are broken up into groupings, with various degrees of privacy, and with some comfortable chairs for those who can concentrate only when almost supine.

One of the difficult questions was whether or not to permit the Radcliffe girls to use the Library. For the time being at least, the girls are excluded. While there are other good reasons, the librarian points out that "experience . . . has shown that a library for men only or for women only can be administered with almost no supervision in the reading rooms, but a coeducational library requires supervision if reasonable quiet is to be preserved." In short, opening the doors to Radcliffe would necessitate doubling the Lamont staff. No use carrying this monotony thing too far!

PENTHOUSE



One of the conference rooms, penthouse story

Roger Sturtevant Photos

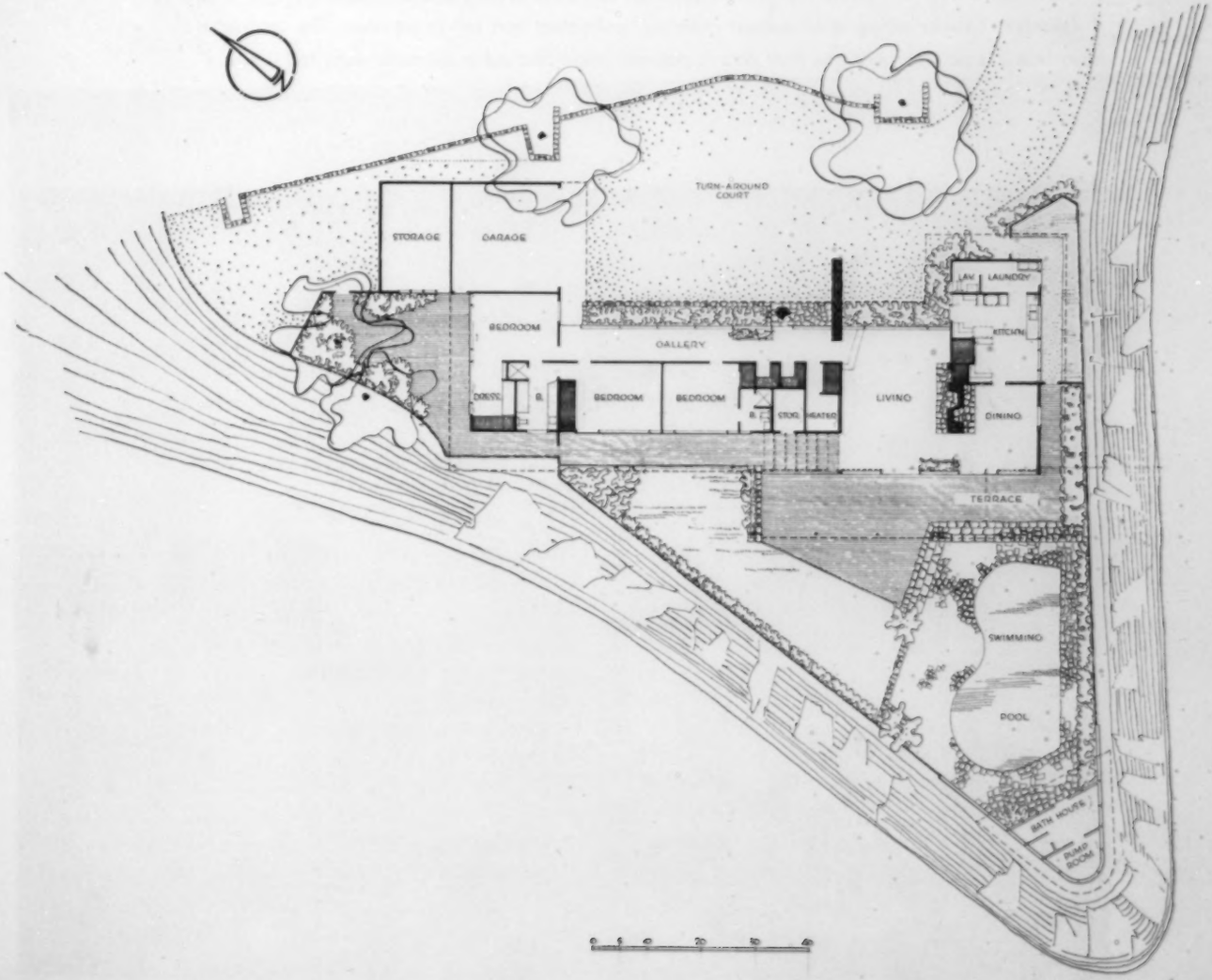
DESIGNING WHAT COMES NATURALLY

"Tamalpais House," North of San Francisco

Henry Hill, Architect; Eckbo, Royston and Williams, Landscape Architects

If this house, by virtue of being published in the magazine, advances the "cause" of architecture, it will probably be because it obviously was not designed to be published in the magazines. It does not bundle up the clichés; it does not flaunt its inventions. Its claim to distinction is the modest naturalness with which it wraps up a pretty expensive package of space. Included in this package is a lush treatment of the outdoors, what with swimming pool, bath house, stone walls and terraces, not to mention the direct floral treatment or the fence to give it all privacy. This naturalness, while readily seen in the photographs; tends to grow more impressive as one begins to appreciate the scale of the house and its glass areas and views.

It was designed for a man and wife, without children, who specified a one-level house with complete privacy for outdoor living and room for extensive but informal entertaining. The site, overlooking the ubiquitous Mt. Tamalpais, is a pointed corner of hillside leveled down to a convenient driveway level, and well fenced in — for privacy, yes, but also to prevent falling into the valley; it simply wasn't possible for the landscaping to flow gently into the countryside. In fact the fence acts as barrier against the closing in of the wilderness.


TURN-AROUND COURT
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GARAGE
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BEDROOM
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PATIO
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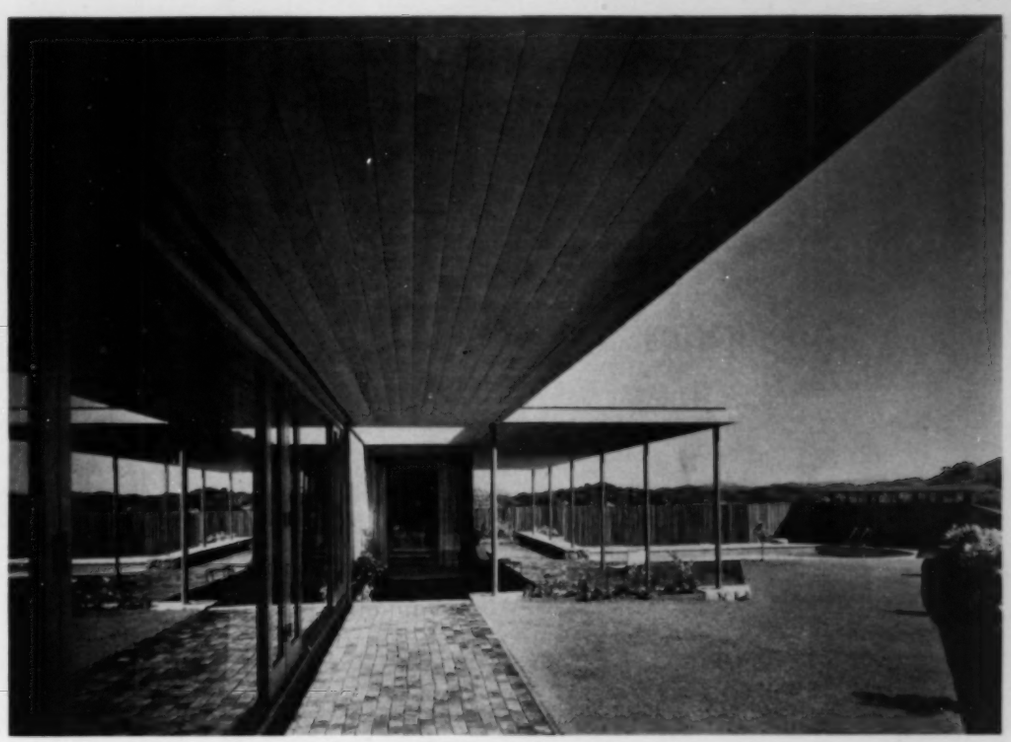
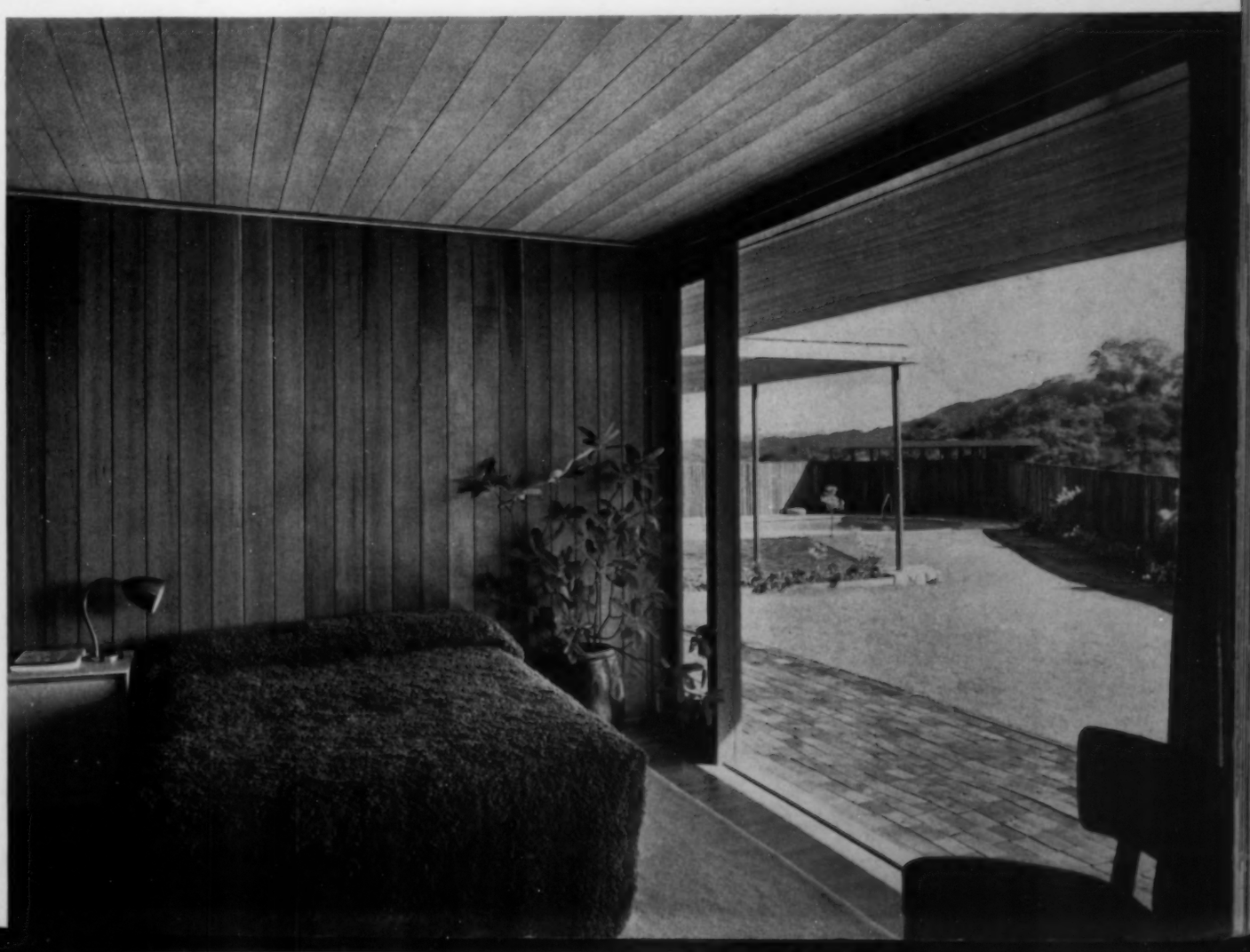
TERRACE
SWIMMING
POOL
BATH HOUSE
PUMP ROOM

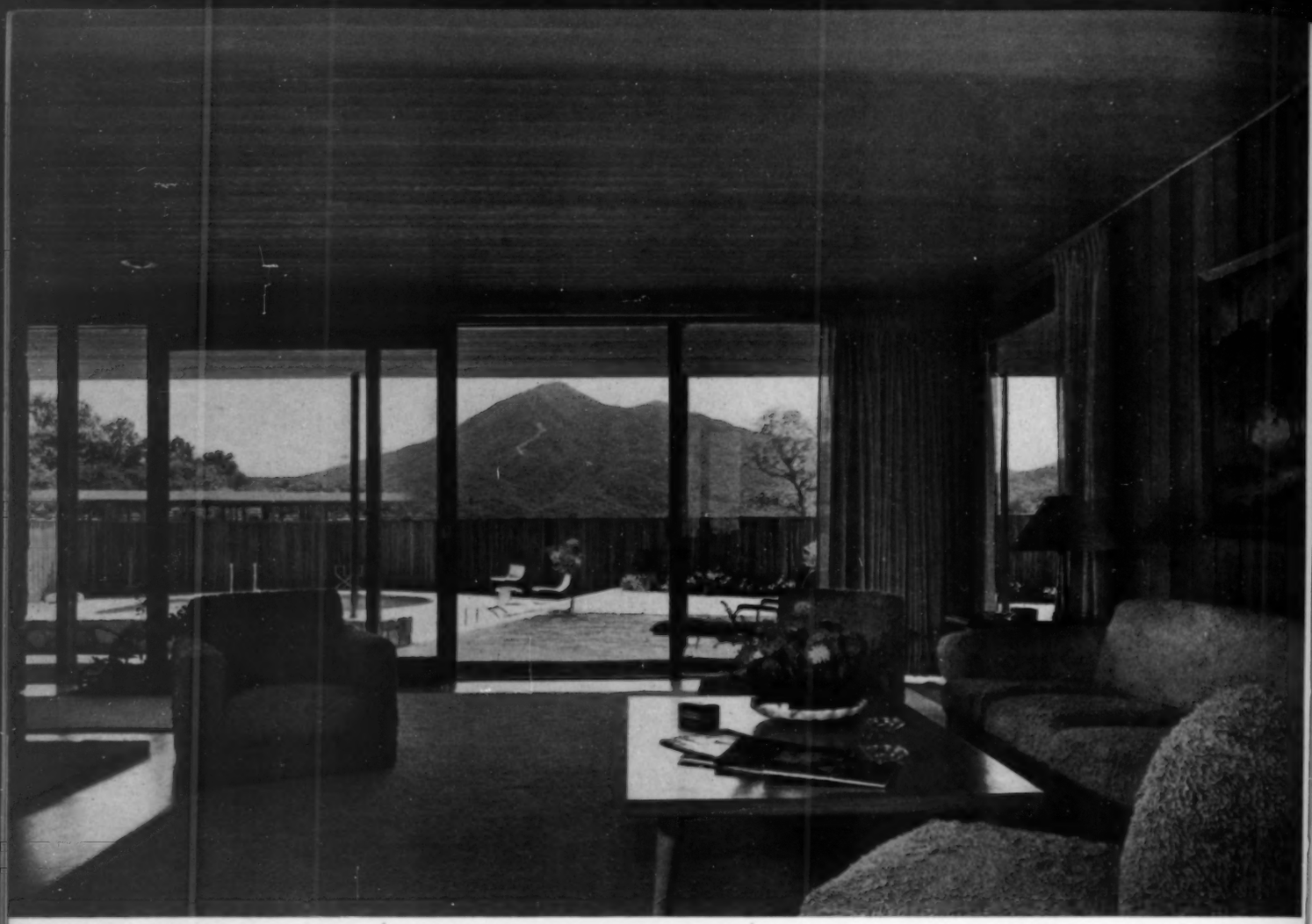
The glazed gallery (above and below) is the only area opening directly to the approach side of the house, facing the turn-around court. The heavy masonry wall serves to shield the living room from direct gaze of visitors at the entrance door, and the planting strip can be arranged to provide further screening if desirable. Exterior siding is all natural redwood, unfinished and left to weather. The continuous facia board is painted gold; the front door is painted inside and out a dubonnet wine red



Eaves at the bedrooms (foreground) are 7 ft. wide; at the living room, 12 ft.; they protect the windows against the western summer sun, but admit the winter sunlight. Terraces under the eaves are paved with redwood blocks, with end grain exposed. The long wall in each bedroom is of pine, stained a gray gold; ceiling is surface pine

Roger Sturtevant Photos





The upper view of the living room gives some idea of the scale of the house and its vistas. It easily accommodates the massive furniture (by Frank DeWitt), indeed the heavy furniture is really necessary to the room. The heavy masonry at the fireplace also is in scale, as is the huge painting on the opposite wall. Living-dining room walls are natural redwood

Roger Sturtevant Photos

The principal bedroom has its glass wall opening into a private garden formed by the outside storage room, the house itself and the last section of the fence. With this assurance of privacy, even the dressing room can have a full glass wall (dressing room and bath at lower right)

1. Steel Armchair, Mies van der Rohe. 2. Molded Plywood Chair, Haskelite Corp., Saarinen & Eames (Sunami Photo). 3. Floor Lamp, Baldwin Kingrey, Harry Weese. 4. Glass Set, J. & L. Lobmeyr, Adolf Loos. 5. Prefabricated Kitchen-Bath Unit, W. Brooks Cavin, Jr. 6. Storage Wall, Tullio Bussi (DOMUS). 7. Printed Fabric, Arundell Clarke, Philip C. Johnson. 8. Printed Fabric, Alexander Girard (Astleford Photo). 9. "Primitive Forms," Print, Design Unit New York, Baldwin & Machado

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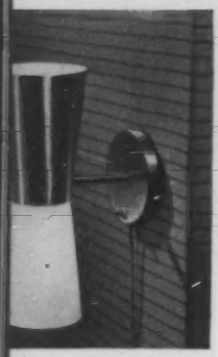

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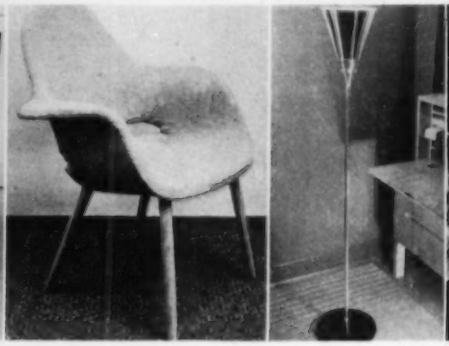

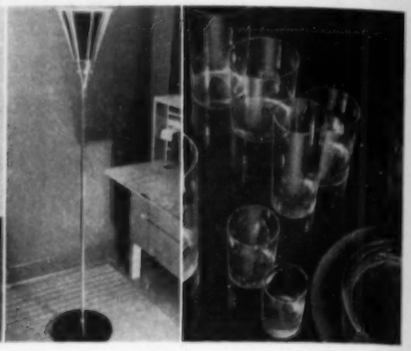

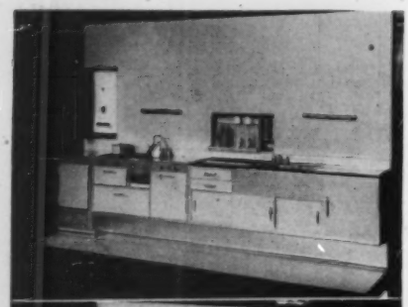

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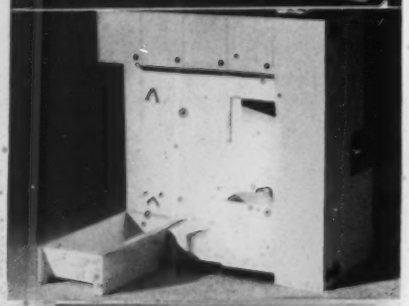

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Photographs not identified or numbered on this spread appear with proper identification on the following pages

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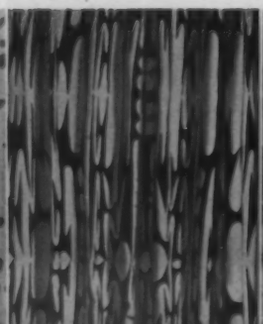

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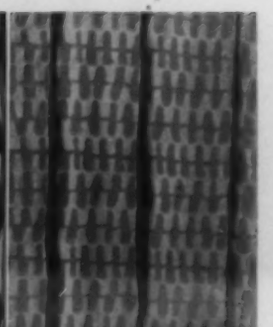
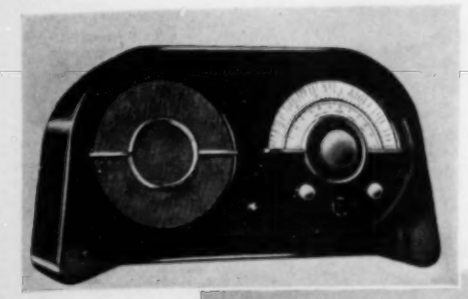


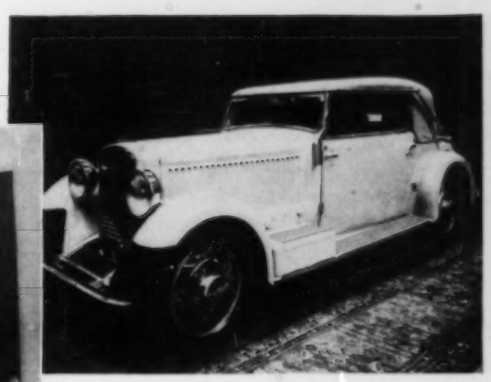
ARCHITECTS

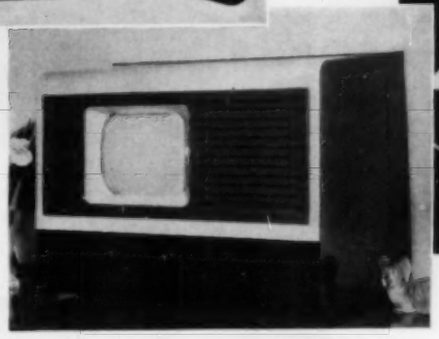
THIS is by no means the first report on the activities of architects as industrial designers, but it might well be the last. For architects are doing so much designing for industry that even this attempt to show current work has run into pages and pages of postage-stamp pictures.

It wasn't so many years ago that industrial design was being held out to architects as a new line of activity. But it is really only the phrase that was new — design of objects and products of manufacture 'way back in history was done by the same talent that designed buildings. So in doing it now architects are only doing what their forebears did even before they branched off into "architectural design." This latter was really a specialization of the "master builder" phase of architectural history. During these eras industry went its own way, intent on mechanics and function and superimposed or superficial decoration, and only of late has it appreciated the integral relationship of these to form.

In truth architects, as "industrial designers," are leading the way in organic design — industry got around to wanting "design," but probably what it really sought was, say, "styling for salesmanship." So







The editors are indebted to the Department of Architecture and Design, Museum of Modern Art, for the privilege of selecting many illustrations from its collections

DESIGN FOR INDUSTRY

A current visual report on industrial design by architects, covering products ranging from bathing slippers to mechanical cores for buildings

a great deal of what was earlier called industrial design was merely cosmetics on the skin of the product. Now manufacturing generally is getting more benefits than it contemplated when employing architects to pretty up its products. It is getting design, good design, organic design, and therefore economical, efficient and workable design.

In Europe it appears that industrial design has always been done by architects, without the prior intervention, or invention, of the "industrial designer." Some would say that was explained by the fact that architects in Europe did not stray so far from organic design as did those in America, or that they appreciated it earlier, or something of the sort. But it also might be explained by the fact that in Europe industry did not make such "industrial" progress as here, and thus go so far afield from true esthetics. Certainly it is observable, at any rate, that European architects migrating to these shores just naturally expected to design products for industry, and did so, while American architects looked on entranced by this "new field."

The current report, then, is simply that American architects did get into industrial design, and both they and industry have profited. Indeed, American architects could hardly have stayed out — they were dragged in. Their three-dimensional design talent and training made them naturals for the design problems of industrial products, materials and assemblies. Even if some other group did get there first in acquiring the titles and prerogatives of "industrial designers," the architects were invited in in one way or another. Many have been the "boys in the back room," many have taken commissions themselves, and many have simply got there on the better mousetrap route — they designed hardware, furniture, fabrics, accessories, built-ins and what-nots, until their products began to displace older lines. Names in this category include many of the big names of architecture — Howe & Lescaze, Mies van der Rohe, Breuer, Eames, Aalto, Le Corbusier, Nelson, Saarinen, Koch, etc. ad infinitum.

So the influence of architects — dating back to those unnamed souls who designed double-hung windows, radiators, hardware, and so on — has quietly come to be appreciated to the point where architects are now called in to design all manner of things, until mere size alone may make the next current report impossible.

ARCHITECTS DESIGN FOR INDUSTRY

Utility Cores and Storage Units

10. Utility Unit, Ingersoll Steel Division, Borg-Warner Corp., J. Fletcher Lankton (Gie Gaddis Photos). 11. Built-in Kitchen, Thermidor Elec. Mfg. Co., Harwell H. Harris. 12. Mechanical Core, Jane Drew & E. Maxwell Fry. 13–14. Prefabricated Kitchen-Bath Unit, W. Brooks Cavin, Jr. 15. Basic Storage Components, Herman Miller Furn. Co., George Nelson

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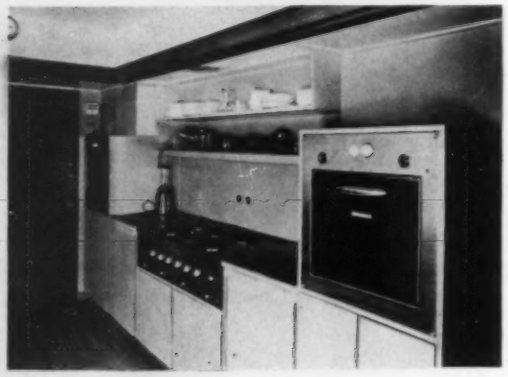

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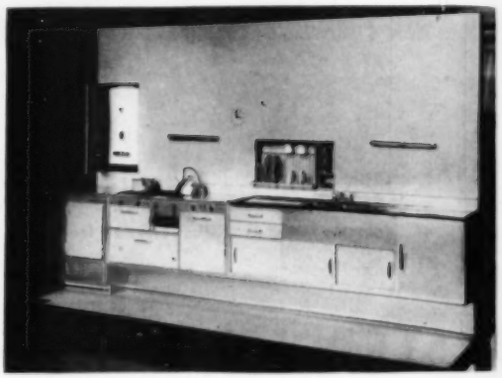

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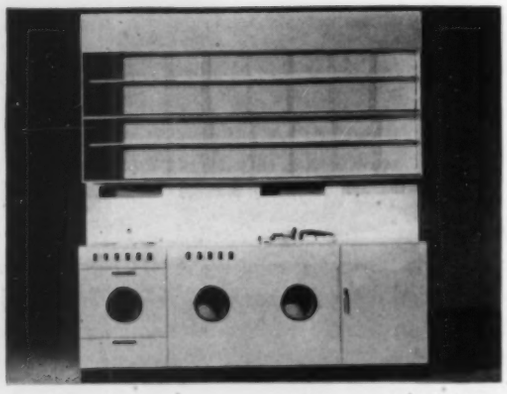

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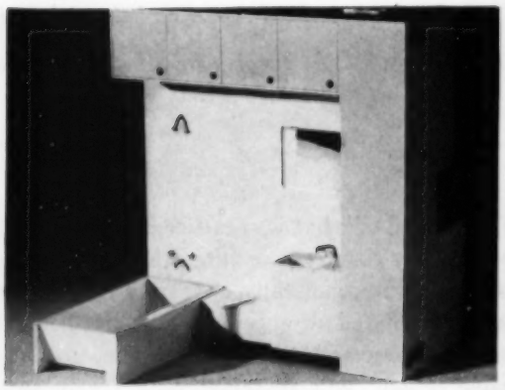

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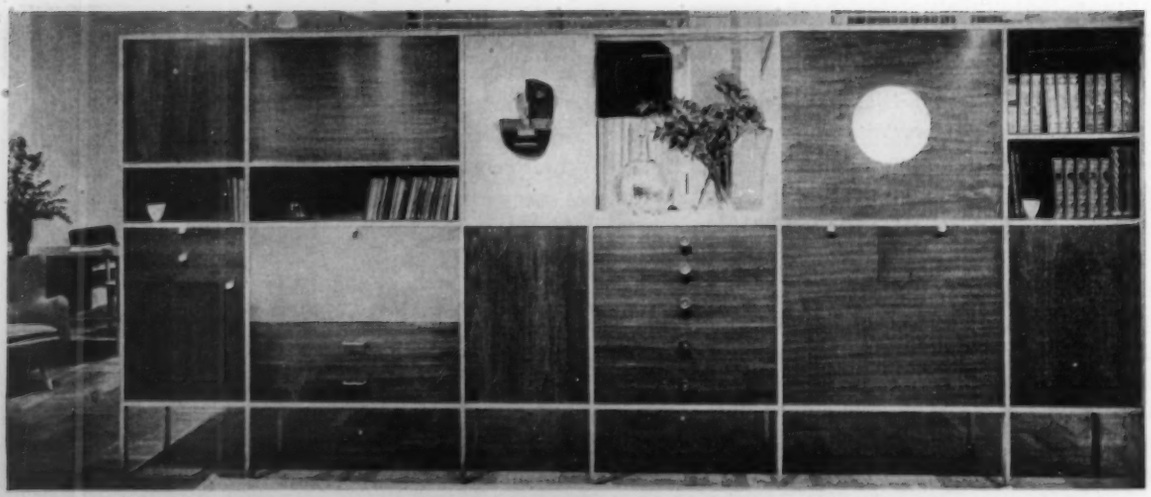

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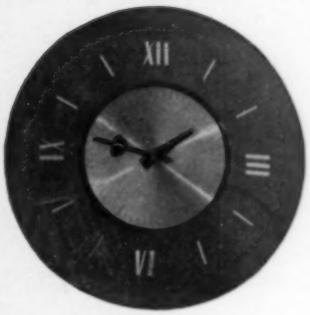

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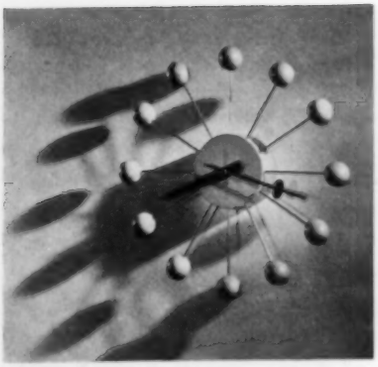
16. Electric Clock, Howard Miller Clock Co., George Nelson. 17. Electric Clock, Howard Miller Clock Co., George Nelson. 18. Electric Clock, Howard Miller Clock Co., George Nelson. 19. Clock, Howe & Lescaze (Steiner & Nyholm Photo)



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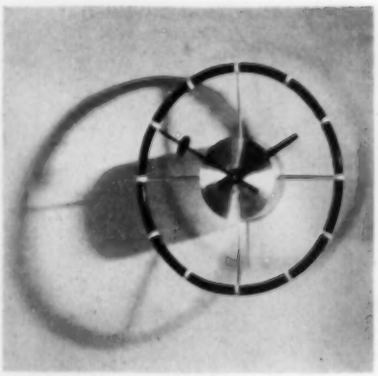

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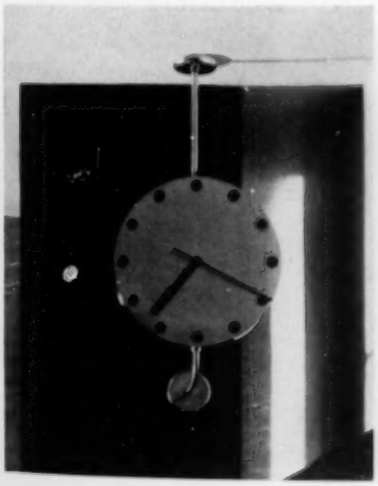

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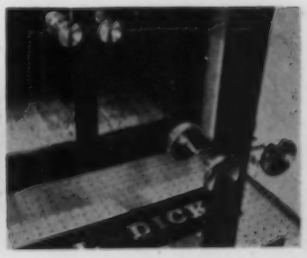

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20. Door Handle, after designs by Mies van der Rohe. 21. Knob & Lock, P. & F. Corbin, Howe & Lescaze. 22. Door Push, Pietro Belluschi (Stoller Photo). 23. Door Knob, Philip C. Johnson. 24. Door Knobs, Nemeny & Geller (Stoller Photo)

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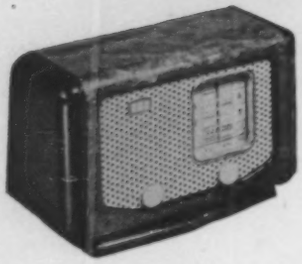

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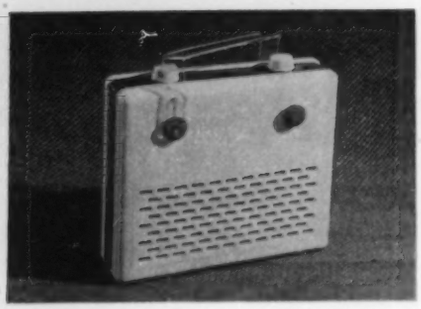

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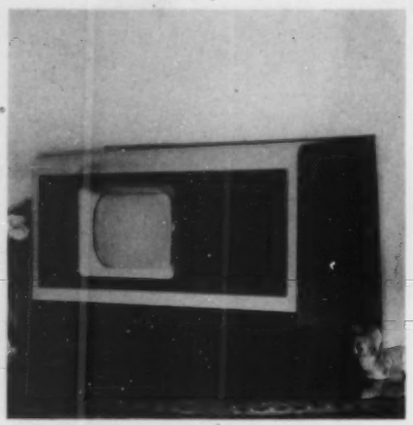
Radios and Television Sets



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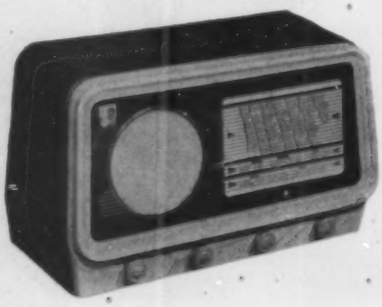
25. Radio (1933), E. K. Cole, Ltd., Wells Coates. 26–27. Radios designed for mass production in Italy, O. F. Henrich, Milan (Bauen & Wohnen). 28. Radio Portable, E. K. Cole, Ltd., Wells Coates. 29. Television Set, Ferranti Ltd., Christopher Nicholson. 30–31. Radios designed for mass production in Italy, O. F. Henrich, Milan (Bauen & Wohnen). 32. Radio (1932), E. K. Cole, Ltd., Serge Chermayeff. 33. Radio-Phonograph, Internat'l. Detrola Corp., Al. H. Girard. 34–35. Radios designed for mass production in Italy, O. F. Henrich, Milan (Bauen & Wohnen)



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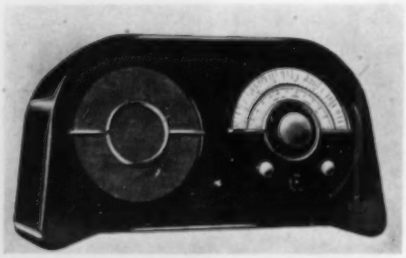

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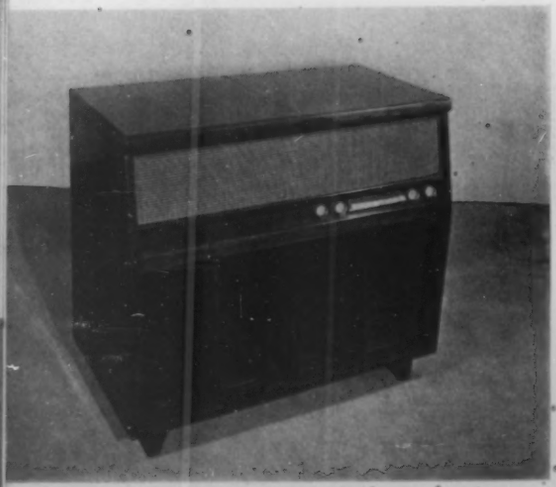

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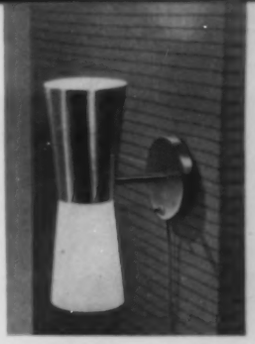

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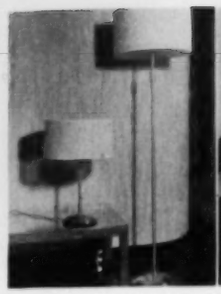

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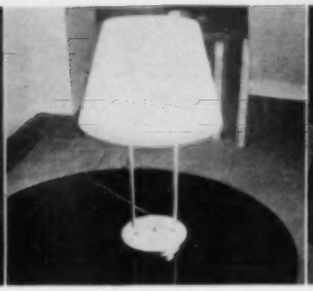

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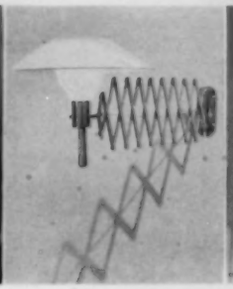

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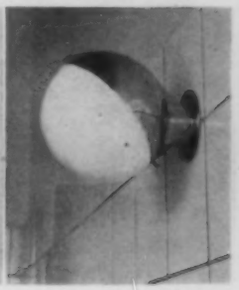

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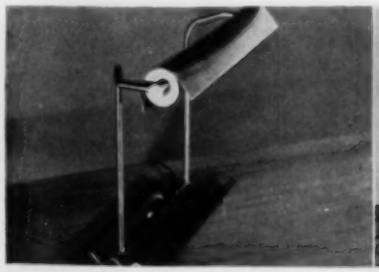
Lamps for the Office and Home

36. Two-Way Wall Lamp, General Lighting, George Nelson (Sanders Photo). 37. Table and Floor Lamps, Victor Pearlman Co., George Fred Keck. 38. Table Lamp, Baldwin Kingrey, Harry Weese. 39. Television Lamp, General Lighting Co., George Nelson (Sanders Photo). 40. Wall Bracket Extension Lamp, General Lighting, George Nelson (Sanders Photo). 41. Wall Fixture, State Radiohouse Copenhagen, Vilhelm Lauritzen. 42. Fluorescen Desk Lamp, Mutual Sunset, Weese & Baldwin (Sunami Photo). 43. Deskt Lamp, Kurt Versen, Howe & Lescaze. 44. Table Lamp, Mutual Sunset, Weese & Baldwin (Fenn Photo). 45. Gooseneck Desk Lamp, Mutual Sunset, Peter Pfisterer (Sunami Photo). 46. Two High Arms, Mutual Sunset, Peter Pfisterer (Fenn Photo). 47. Two Arm Floor Lamp, Mutual Sunset, Peter Pfisterer (Fenn Photo). 48. Standard Lamp, New Design, Philip C. Johnson (Lundquist Photo). 49. Floor Lamp, Mutual Sunset, Peter Pfisterer (Fenn Photo). 50. Gooseneck Floor Lamp, Mutual Sunset Lamp Mfg. Co., Weese & Baldwin (Fenn Photo)



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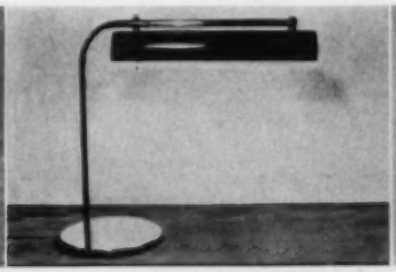

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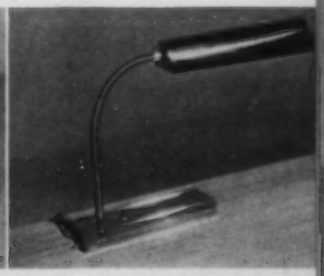

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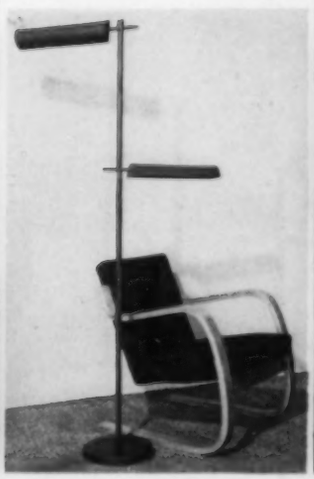

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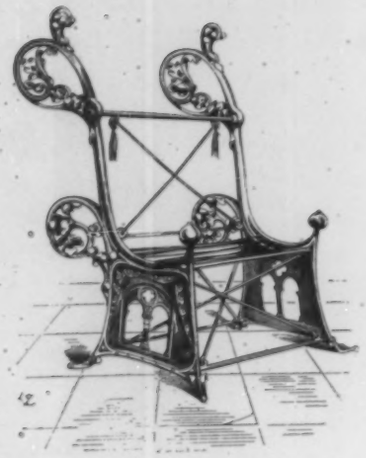
ARCHITECTS DESIGN FOR INDUSTRY

Metal Chairs



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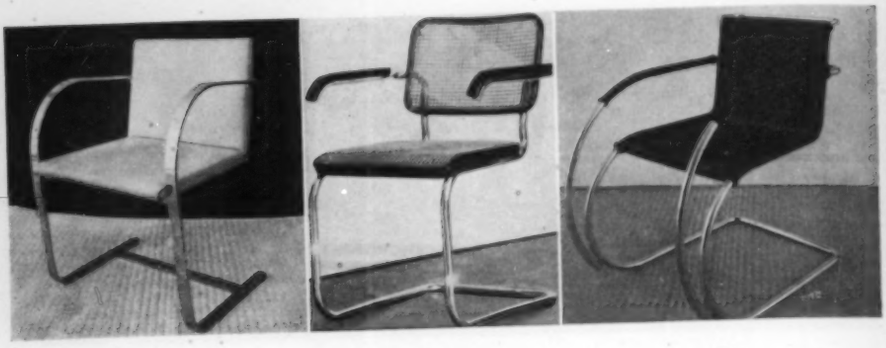

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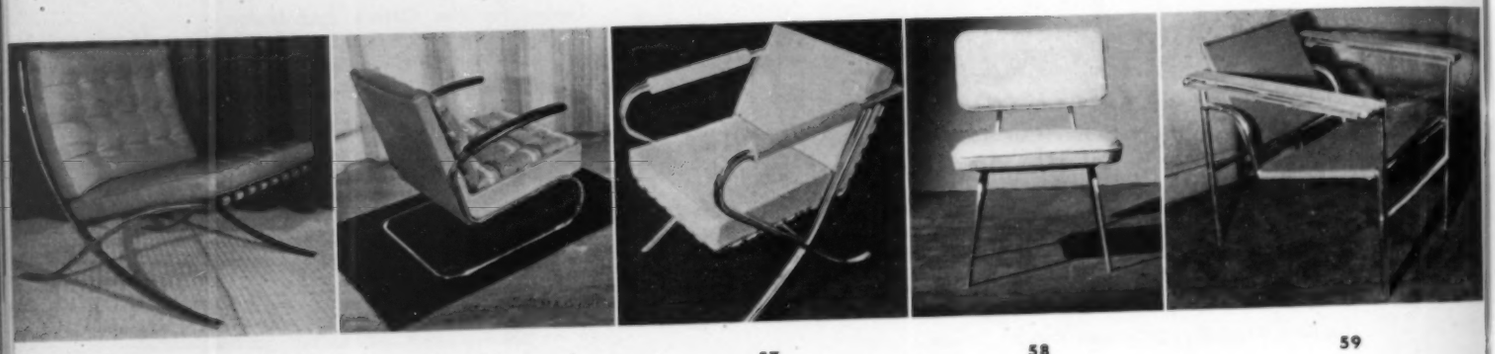

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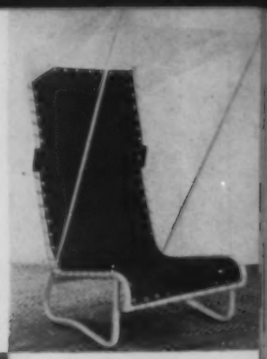
Garden Equipment



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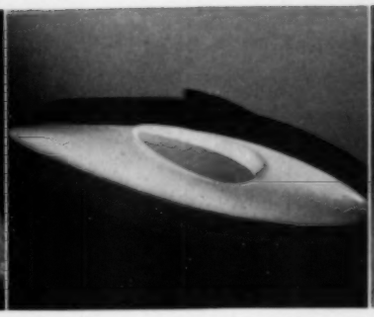

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51. Chair (1872), Dictionnaire Raisonné du Mobilier Francais, M. Viollet Le Duc. 52. Steel Chair, Mies van der Rohe. 53. Tubular Steel Chair, Thonet, Marcel Breuer. 54. Tubular Steel Chair, Mies van der Rohe. 55. Upholstered Steel Chair (1949), H. G. Knoll, Mies van der Rohe. 56. Armchair, Hans Knoll, Serge Chermayeff. 57. Steel Armchair, Metz en Co., J. J. P. Oud. 58. Chair, Herman Miller Furn. Co., George Nelson (Stoller Photo). 59. Steel Chair, Thonet, Le Corbusier. 60. Steel Chairs, Metz en Co., J. J. P. Oud. 61. Aluminum Garden Chair (1933), Marcel Breuer. 62. Molded Plywood Chair, Herman Miller Furn. Co., Charles Eames (Sunami Photo). 63. Aluminum Chair (1933), Paris Competition, Marcel Breuer. 64. Aluminum Chairs, Wohnbedarf, Marcel Breuer. 65. Iron Garden Chair, Luigi Vietti. 66. Wood Slat chair, Lloyd Mfg. Co., Weese & Baldwin. 67–68. Stacking Chairs, P. E. L., Serge Chermayeff. 69. Terrace Chair, John B. Salterini, Bernard Rudofsky (Richardson Photo). 70. Protective Headgear of Inflated Vinylite, Gallowhur Chem. Corp., Wm. H. Miller, Jr. 71. Collapsible Vinylite Boat, Gallowhur Chemical Corp., Wm. H. Miller, Jr. 72. Saddle Stool, Design Unit New York, Benjamin Baldwin (Melton Photo). 73. Barbeque Wagon, Lloyd Mfg. Co., Weese & Baldwin. 74. Barbeque Wagon, Lloyd Mfg. Co., Weese & Baldwin. 75. Barbeque Wagon, Lloyd Mfg. Co., Weese & Baldwin. 76. Table and Bench, Lloyd Mfg. Co., Weese & Baldwin. 77. Canvas Cot, Lloyd Mfg. Co., Weese & Baldwin

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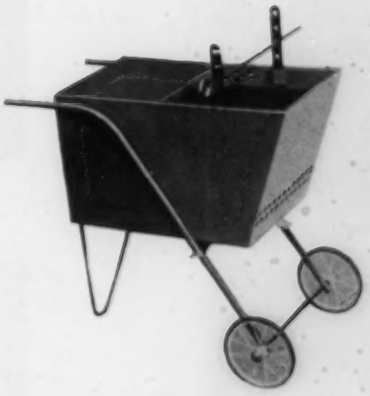

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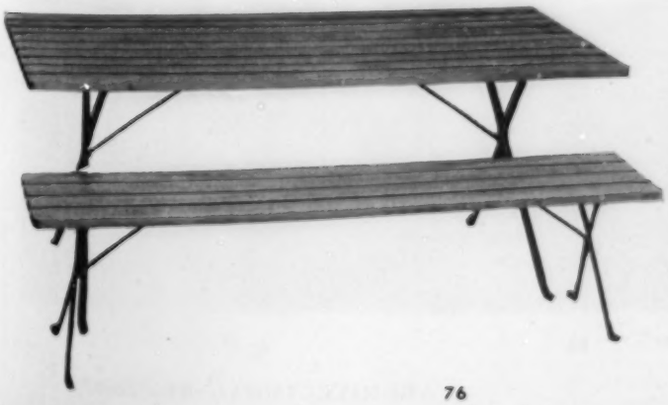

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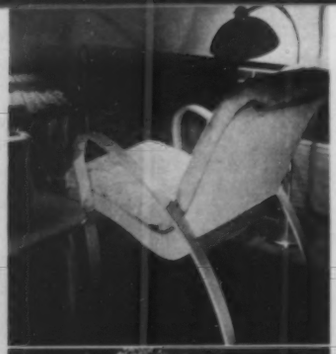

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78. Armchair, Carl Koch. 79. Easy Chair, H. G. Knoll, Eero Saarinen. 80. Reclining Chair, Isokon, Marcel Breuer (Russo Photo). 81. Reclining Chair, H. G. Knoll, Eero Saarinen (Gildart Photo). 82. Molded Plywood Nursery Chair, Charles Eames. 83. Side Chair, Carl Koch. 84. Arm Chair, Svenska Moebel., Axel Larsson. 85. Stacking Stools, Alvar Aalto. 86. Molded Plywood Chair, Charles Eames. 87. Molded Plywood Side Chairs, Haskelite Corp., Saarinen & Eames. 88. Upright Chairs, H. G. Knoll, Abel Sorensen (Stevens Photo)

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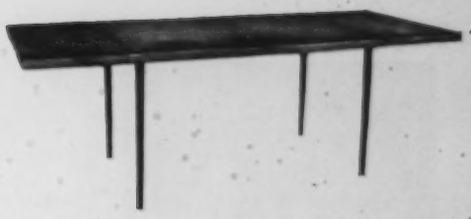

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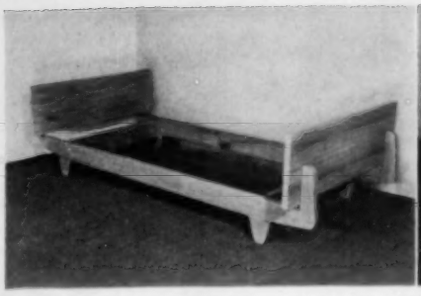
89. Dining Table, Red Lion Furn. Co., Saarinen & Eames. 90. Bed, Red Lion Furn. Co., Stonorov & von Moltke (Sunami Photo). 91. Couch, Red Lion Furn. Co., Stonorov & von Moltke (Sunami Photo). 92. Dining Table, Herman Miller Furn. Co., Charles Eames (Eames Photo)



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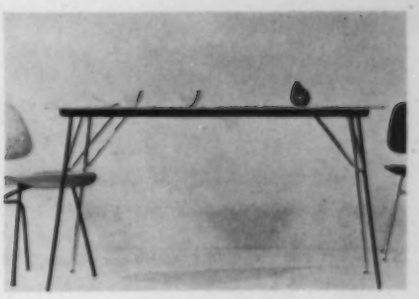

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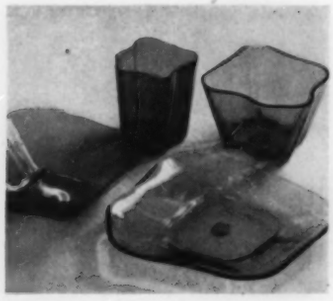
97–99. Glass Sets, J. & L. Lobmeyr, Josef Hoffman. 100. Glassware, Alvar Aalto (Sauren Photo). 101. Table Glassware, Rheinische Glasshuetten (1901), Peter Behrens. 102. Vases, Artek, Alvar Aalto (Sunami Photo). 103. Brass Ashtray, Jacobsen & Moller (Hammerschmidt Photo). 104. Flatware, Dominioni & Castiglioni, Milan. 105. Andirons, Mario Corbett. 106. Flower Pot, Kuenstlerwerkstaetten, Josef Hoffman (Gerlach Photo)



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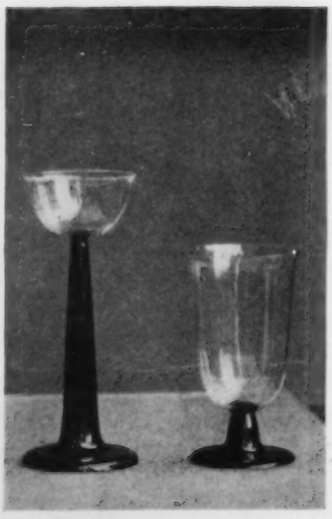

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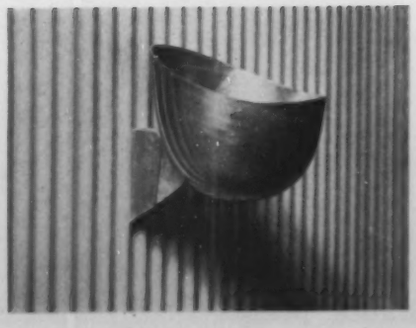

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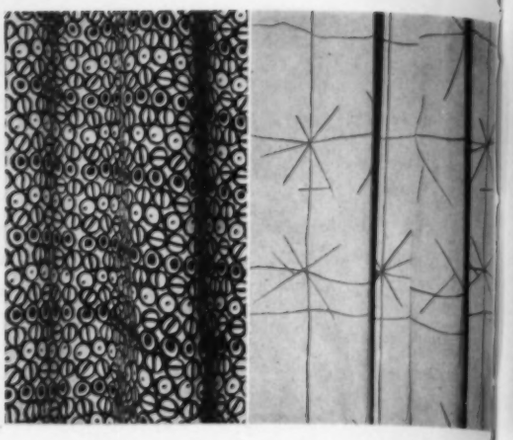

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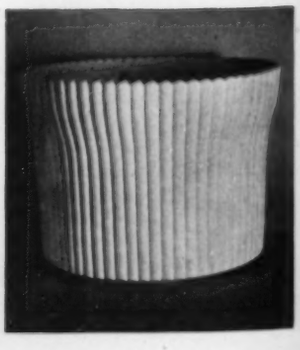

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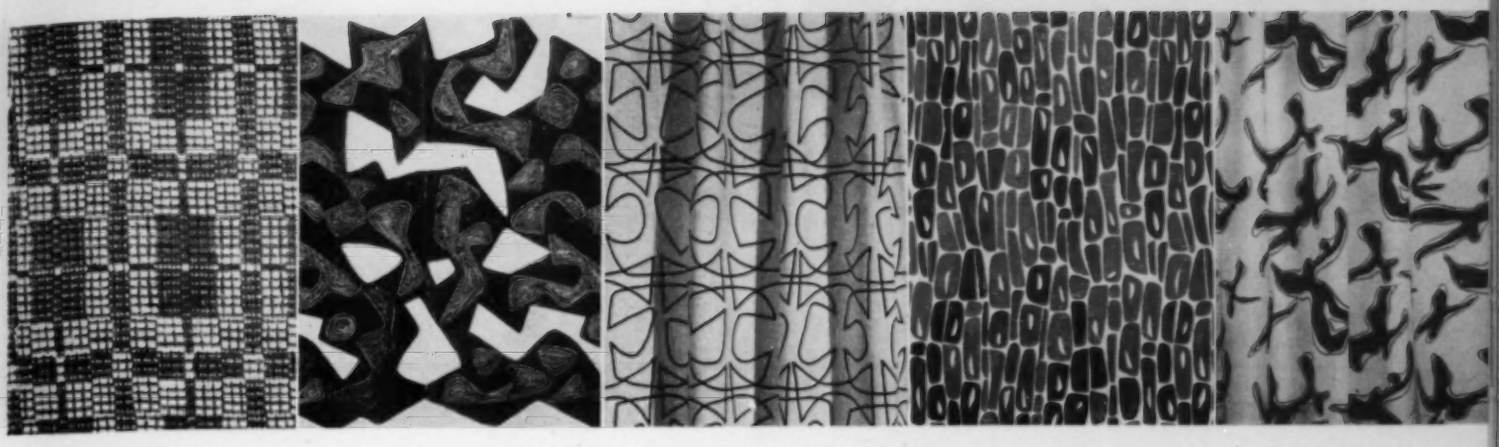

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107. "Barrel Heads," Print, Design Unit New York, Baldwin & Machado (Melton Photo). 108. "Starry Pines," Print in green and grey, Baldwin Kingrey, Baldwin & Machado (Melton Photo). 109. Voorhees, Walker, Foley & Smith. 110. Concentric Lines on Blue Fields on White Ground, Print, Alexander Girard (Sunami Photo). 111. Printed Fabric, Alexander Girard (Astleford Photo). 112. Brown, Yellow and Purple Print, Girard, Saarinen & Eames (Sunami Photo). 113. "Flight," Print in any color on yellow background, Baldwin Kingrey, Baldwin and Machado (Melton Photo)

ARCHITECTS DESIGN FOR INDUSTRY

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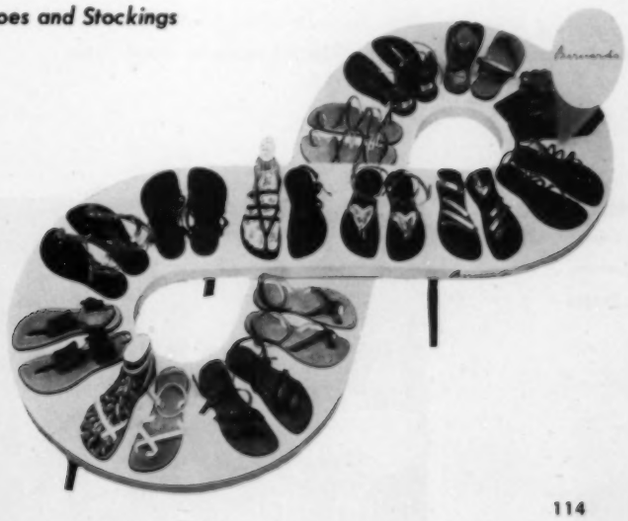

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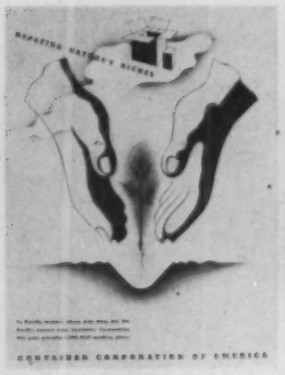
114. Sandals, Bernard Rudofsky. 115. "Glove" Stockings, Bernard Rudofsky



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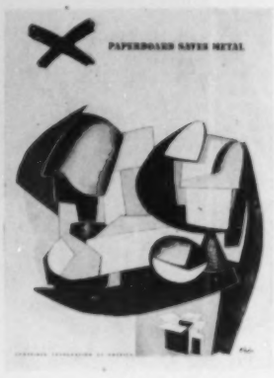

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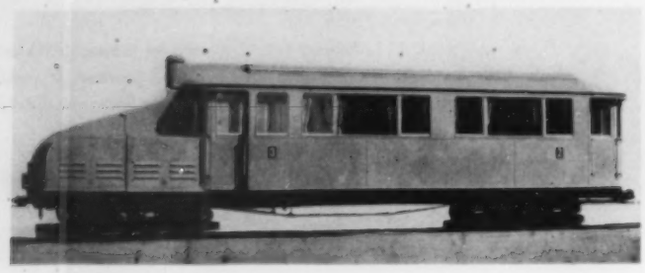

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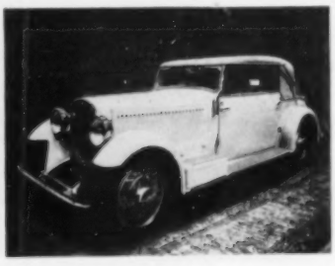

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121. Diesel Engine Cab, Danzig (1914), Walter Gropius. 122. Convertible, Adler Works (1929), Walter Gropius

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123. Upper Observation Dome, California Zephyr, Chicago, Burlington & Quincy Railroad, Harbeson, Hough, Livingston & Larson. 124. Lounge, Empire State Express, New York Central Railroad, Paul P. Cret. 125. Tavern Lounge, Florida East Coast Railroad, Harbeson, Hough, Livingston & Larson. Photos courtesy of The Budd Company

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119. Electric Typewriter, International Business Machines, Eliot Noyes Designer (Norman Bel Geddes & Co.). 120. Electric Typewriter with Carbon Ribbon Attachment, International Business Machines, Eliot Noyes Designer (Norman Bel Geddes & Co.)

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126. Electric Train, Italian Railroads, Renzo Zavanella (DOMUS). 127. Platform Shelter, Milan, Renzo Zavanella (DOMUS). 128–129. Train Interior, Renzo Zavanella (DOMUS)

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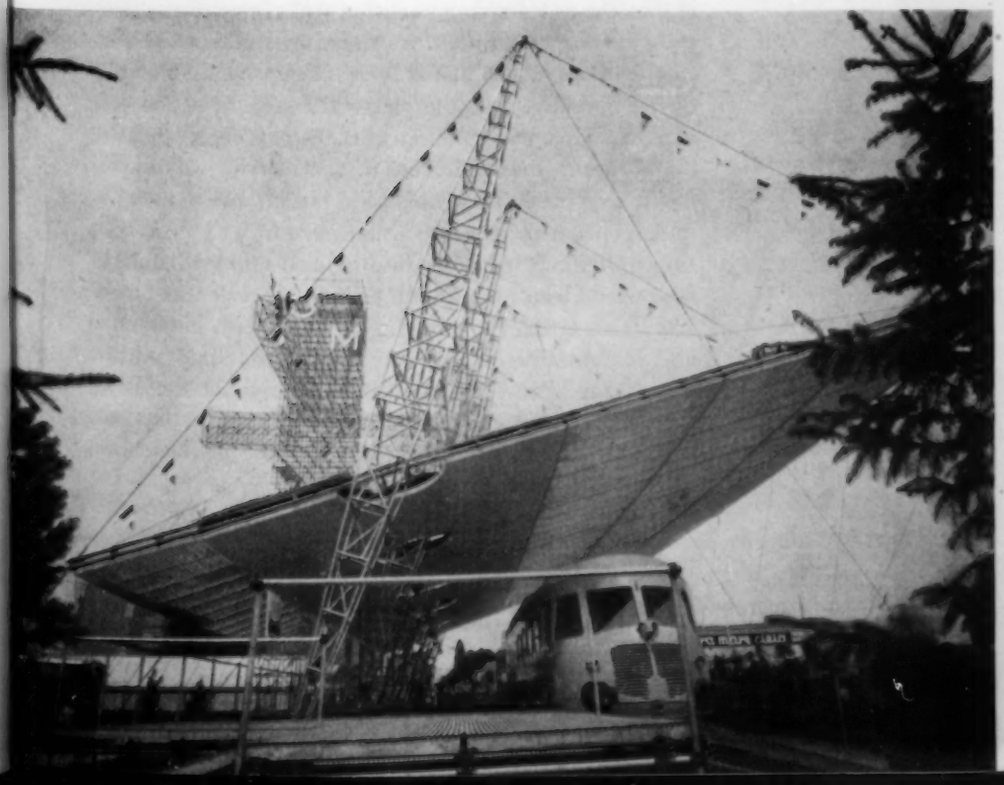

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The White House as it looks today from Pennsylvania Avenue; present rebuilding program will preserve this facade

REBUILDING THE WHITE HOUSE

By Frederick Gutheim

NEWS that the White House was falling down, that it had grave structural defects, was a fire trap, would violate the building codes in any sizable American city, and would have to be reconstructed at a cost of somewhat more than $5,000,000, was received by most architects with incredulity. How does a building that has seen a century and a half of service so suddenly fall into disrepair? Why does it cost so much to reconstruct it when a replica could be built for half that sum? What, perhaps most of all, is to be done to the building that would involve such an expenditure?

The ills to which the White House has fallen heir, and which must now be remedied are of two sorts, those of structure and those of function.

As to the structure, the chief difficulty arises from interior masonry partition walls which, in James Hoban's original design, were not load bearing. As the building underwent successive remodelings to accommodate more people in the attic — a process that culminated in 1927 with new steel roof trusses — the partition walls came to support a large part of the weight of the new roof. Unluckily the brick partition walls, only 9 in. wide at the second floor, on which this weight of 90 tons rests, had no footings. (The original exterior walls, supporting the original roof load, did.) The result is that the now bearing partition walls have slowly been pressed into the ground. As they have sunk, the partition walls have also pulled away from the exterior walls of the building. In some places the settlement has left gaps 2 or 3 ins. wide. Bureau of Standards engineers have made careful measurements of the interior wall movement, and their final conclusion is that the building is undergoing a progressive collapse, slow at the present time but likely to accelerate at any moment. Failure here would lead to a general collapse of the entire structure. This is the chief reason the President, his family, and his entourage have vacated the building and are now living across Pennsylvania Avenue in the Blair House, a residence remodeled by the State Department several years ago for the reception of distinguished

Plaster has been removed from one of the brick partitions to show settling cracks; these walls have no footings, were never intended to bear present loads

Almost every president has added to or remodelled the White House; President Truman added his famous balcony

visitors of state. It is unlikely the White House can be reoccupied for two to three years, for the work of reconstruction will be slow as well as costly.

The second major structural factor is the result of the passion for "improvements" that marched steadily with the 19th and 20th centuries, until today there is scarcely a beam in the entire building that has not been bored or cut through dozens of times to accommodate water and sewer pipes, gas pipes, heading pipes, electric and telephone wires, automatic fire alarm and guard signal systems, elevators, a fire extinguishing system, and other mechanical innovations. In the very structure of the building itself (for propriety and taste would not countenance it exposed), generations of architects and builders have concealed the complete mechanical equipment of a modern office building, none of which was provided or even contemplated by the original builders.

The slow murder of the original building led finally to the vibrating floors, the shaking chandeliers, wall cracks, and the dramatic collapse of the floor in Miss Margaret Truman's second floor sitting room, when a beam split under some unexpected load and one piece of it punctured the delicately groined ceiling in the private family dining room below.

Other less important and less extensive structural defects have been disclosed, among more important of which is the loosening of the heavy ornamental plaster ceiling in the East Room. In addition, the usual accumulation of ancient electrical wiring not encased in conduits, and other defects in construction now barred by building codes in most cities, were unearthed. This is presumably what Public Buildings Commissioner William E. Reynolds had in mind when he said the building would not pass the building codes.

To ascertain the state of the building, foundations — or the lack of them — have been uncovered, floors have been taken up, and plaster removed from walls and ceilings. In this investigation, the first thoroughgoing structural exploration in its entire history, experts of the Federal Works Agency, the Public Buildings Administration, the National Park Service, and the Bureau of Standards have participated. Up to now the White House has been redecorated, remodeled, or mechanically improved, but so far as the structure itself was concerned, it was ignored or patched up with tie rods and turnbuckles.

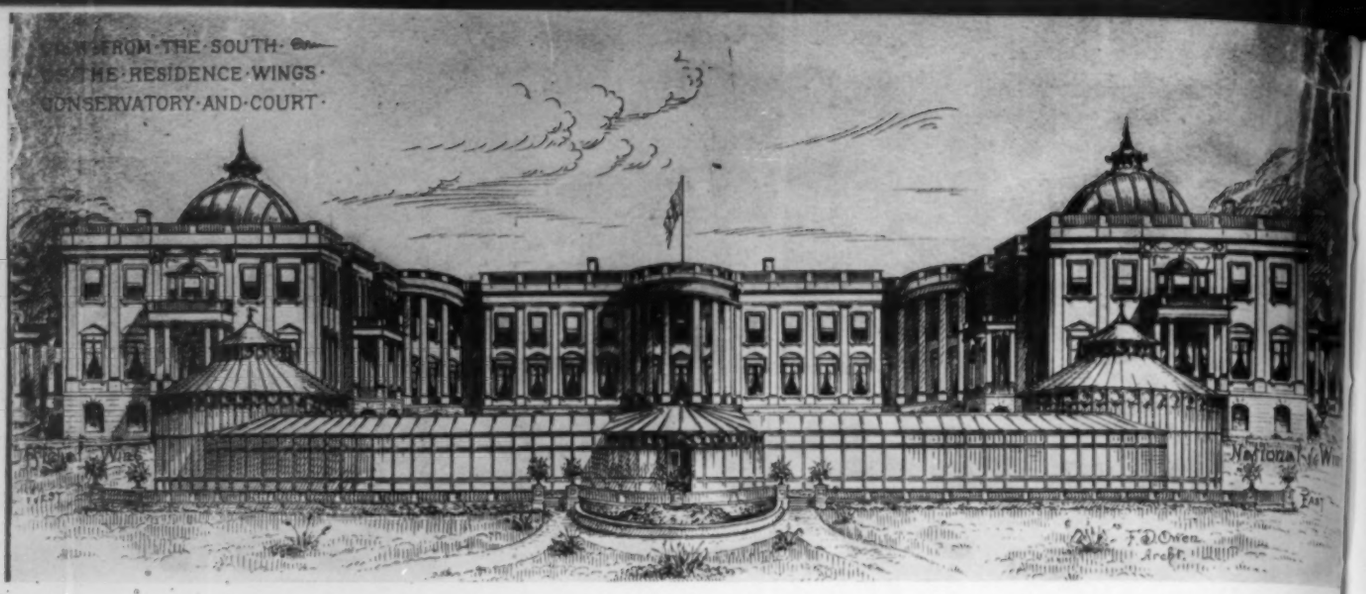
Before going on to other problems presented by the building, it seems worth while to mention two facts that have emerged from the extensive survey. The first is that had no extensive changes been made in the building, it would have remained wholly satisfactory to this day. The original design and construction were first rate, and although one finds here and there the usual anomalies of all old building — stones mixed indiscriminately with brick construction, lime mortar, and the rest — it has stood the test of time remarkably well. Unlike many 18th century buildings, in England particularly, that were so poorly built they had to be torn down, the White House shows that our ancestors built well.

The second is that had the functions of the building not multiplied beyond the most remote conception of its original designers, bringing far heavier floor loads, new demands for entrances and exits, larger attendances at state dinners and official receptions, a greater retinue of servants, household and domestic attendants, private and official secretaries, and the like, the structural problems themselves would be far less acute.

The White House, in short, is neither worn out nor used up; it is overloaded. One does not expect a residential building to stand up to the kind of traffic expected in a railroad terminal. That is why structural considerations alone are an inadequate measure of the reconstruction about to be undertaken. Some decisions on the functions of the building come first.

The President's House — to give the building its first and best name — was conceived as a residence for our chief of state. In contrast to the palaces of European rulers in 1792, when Hoban won his $500 prize in a competition for the building's design (and embarked upon a career as a public buildings designer that in-

Douglas William Orr, former president of the American Institute of Architects, is one of two recently named by President Truman as public members of the commission which will supervise the rebuilding of the White House. The other public member is Richard Erwin Dougherty, former president of the American Society of Civil Engineers. Both have already served as members of the President's Advisory Committee on Safety of the White House.



Scheme for "improving" the White House, presented to President McKinley in 1899; A.I.A. opposition killed it

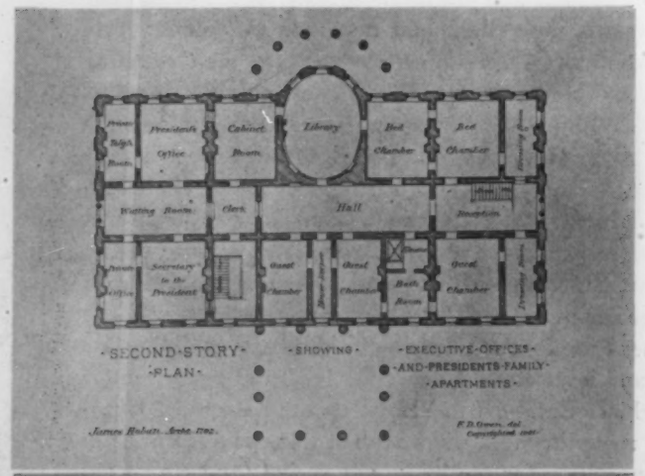
cluded the reconstruction of the White House after the British had burned it in 1814) the building was a modest one. Here, it was assumed, the chief of a democratic state would live, and here he would entertain on an appropriate scale befitting the dignity of the nation. Abigail Adams, the first "first lady" to occupy the building, remarked in astringent language "it is an establishment well proportioned to the President's salary." But it did express a national ideal.

At the point in 1800 when Mrs. Adams was able to claim six of the 30 rooms in the President's House (builders still occupied the rest) and begin complaining that the plaster was not dry and the paint was still wet, the Washington bureaucracy consisted of 128 persons and the nation had a population of about three million. But in less than a hundred years, guests attending obligatory receptions at the White House came down with pneumonia as the result of standing in queues in the snow to enter the building, and temporary wooden stairs were erected to provide an exit from the East Room through one of the windows.

Cabinet meetings that began on the second floor of the White House adjoining the President's oval study — the room now leading to Mr. Truman's famous balcony — by the time of Lincoln's war administration had thoroughly invaded the President's domestic sanctuary. The presidents and their families never really succeeded in recapturing their living space after the invasion during the civil war days, when telegraphers, secretaries, cabinet chiefs, functionaries, and even office and commission-seekers made free with the place. They stirred restlessly and demanded stained glass screens from Tiffany, or fumed oak wainscot in the prevailing mode, but they never succeeded in getting space and privacy. The cabinet continued to meet on the second floor of the White House until Theodore Roosevelt called a halt, and changed the scene to the new White House executive office wing.

The emancipation of the White House from this intolerable jumble of domestic and official functions was achieved in the Roosevelt administration by the simple device of removing all the office work to a separate wing erected at the end of the west colonnade. That liberated the second floor of the White House itself. The first was largely dedicated to the Red, Green, and Blue Rooms, the East Room, and the Dining Room — all reserved for state occasions. The basement (which to the south is wholly above ground) became the stronghold of cooks, gardeners, carpenters, doctors, dentists, librarians, and anyone else who was able to find a place in the President's household and hang onto it.

The Roosevelt reform, accomplished under the direction of Charles Follen McKim, was decisive. It estab-



Floor plans of the White House, circa 1900, as drawn by F. D. Owen, architect for the enlarging scheme shown above; dates show when various rooms were added

President McKinley's bedroom

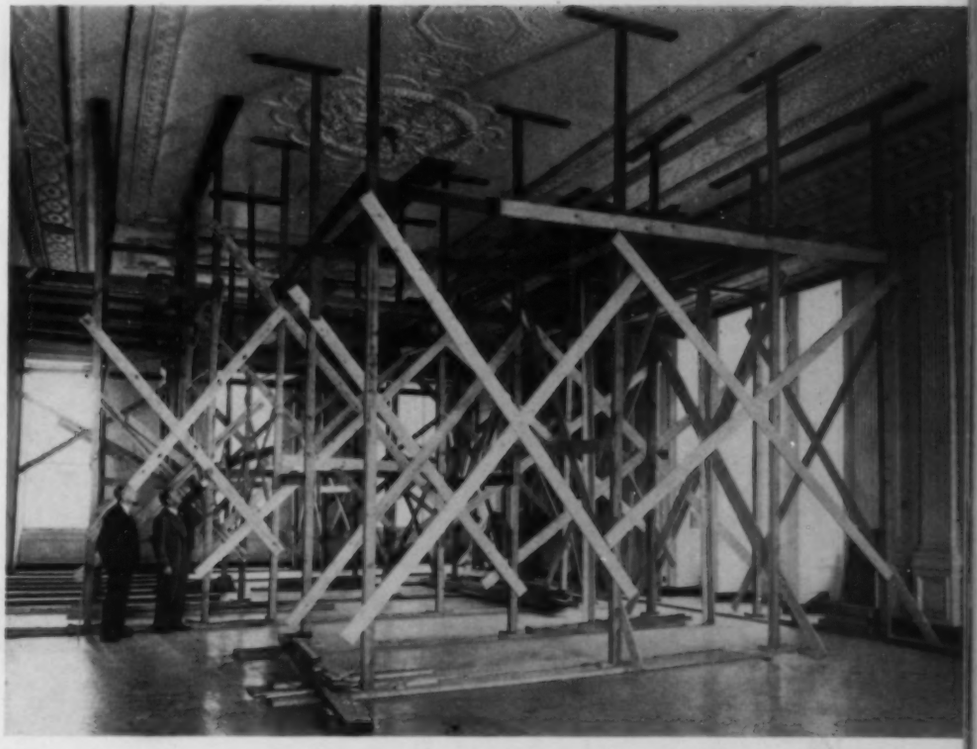
A Lincoln reception in the East Room

lished for good the residential character of the White House, which had been menaced only a few years earlier by President McKinley, who sponsored a plan conceived by Colonel Theodore Bingham — an atrocity that can only be described as miniature versions of the then-popular Library of Congress, mounted on top of two enormous wings that would have obliterated the original building.

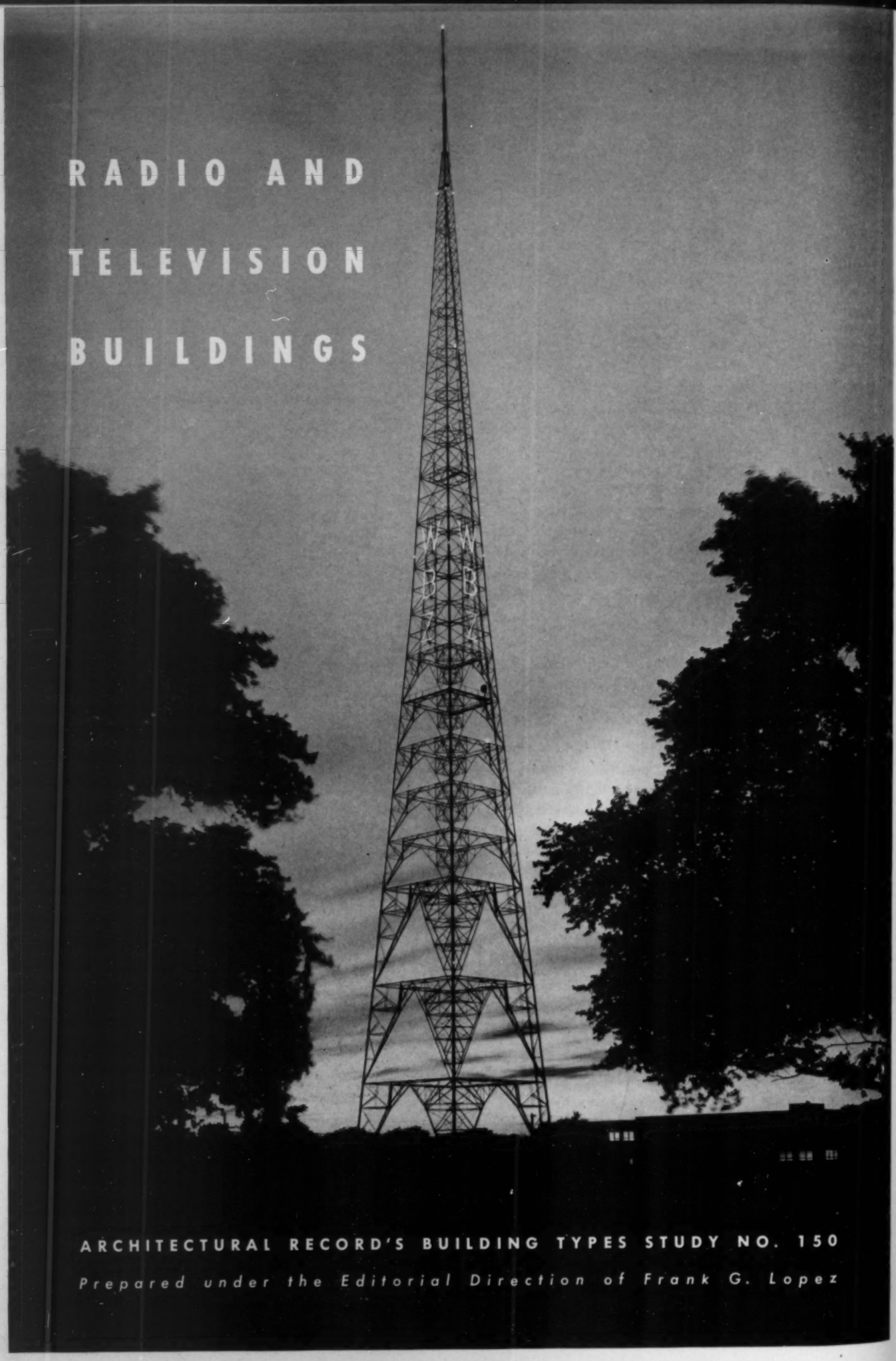
That President Roosevelt was decidedly aware of what he was doing with the McKim plan is amply confirmed by his famous letter to the American Institute of Architects, and the determination of that body ever since to maintain the delicate balance between a residence and a public building that McKim had given it.

Every proposed change in the White House since has been motivated chiefly by a desire to obtain more space for the expanding functions of the executive office. The

(*Continued on page 182*)



Scaffolding supports the sagging ceiling of the famous East Room. Upper view shows that this ceiling has sagged six inches. Beneath the scaffolding in the lower view (April 6) are C. W. Barber, chief structural engineer, PBA, and Lorenzo S. Winslow, Architect of the White House


RADIO AND
TELEVISION
BUILDINGS
ARCHITECTURAL RECORD'S BUILDING TYPES STUDY NO. 150
Prepared under the Editorial Direction of Frank G. Lopez

THERE are just enough similarities between radio and television broadcasting to confuse the building designer. However, radio is concerned with reproducing *sound*, while TV's greatest problem, not thoroughly licked though commercially quite feasible, is satisfactory *visual* reproduction. Visual broadcasting entails not only photogenic scenes and performers; to create its illusion TV has borrowed techniques and performers from the legitimate theater and the movies; in many studios properties are literally borrowed from the neighborhood retail store, after the fashion of an amateur dramatic club. Radio has borrowed performers from the theater and, often, the audience. Radio requires a studio sized and acoustically treated to suit the performance, containing a few props, sound effects, microphones, and enough light for reading scripts. In the 'live' studio TV requires a blaze of light, stage sets, many props, usually three cameras per show, all movable on dollies; mikes on booms, also mounted on dollies (these can't appear on the receiver screen); and a host of performers and production personnel: actors, camera and mike operators, dolly pullers, electricians, property men, stagehands, and assistant directors. Cameras, mikes, and lights demand complex wiring which usually covers the floor like a mass of snakes; no better system has been found; changing the camera cable's length causes serious technical difficulty.

Congestion of TV equipment, wiring, and personnel is so great that a studio audience is tolerated only when it is indispensable to a show. The program director in charge of a production works from the glass-walled control booth, supervising the performance and numerous control technicians simultaneously, and talking to the studio staff over an intercommunication system. The sponsor is usually in a separate booth to minimize interference with the broadcast.

Partly because technical changes are foreseen and partly due to complexity of broadcasting channel allocation, the Federal Communications Commission has granted no TV licenses in recent months. Impatient though broadcasters are with this 'freeze,' in the long run it should save both them and the public money and confusion. By early summer the Commission reportedly expects to decide on TV allocations in the VHF (very high frequency) channels; by late summer the freeze may be lifted. This would mean rapidly accelerated construction of TV facilities this fall. UHF (ultra-high frequency) broadcasting, a rumored possibility, depends upon development of suitable power. The following figures, obtained from FCC, tell the story as of March 31, 1949:

TELEVISION STATIONS IN THE U. S. A.

Now operating, fully licensed	7
Operating Special Temporary Authority	52
Total now operating	59
Authorized but not yet op't'g	62
Total now authorized	121
License applications pending	323
Total authorized & pending	444

RADIO STATIONS, FM

Now on the air	724
Authorized but not yet op't'g	199
Total now authorized	923

RADIO STATIONS, AM

Now on the air	1974
Authorized but not yet op't'g	175
Total now authorized	2149

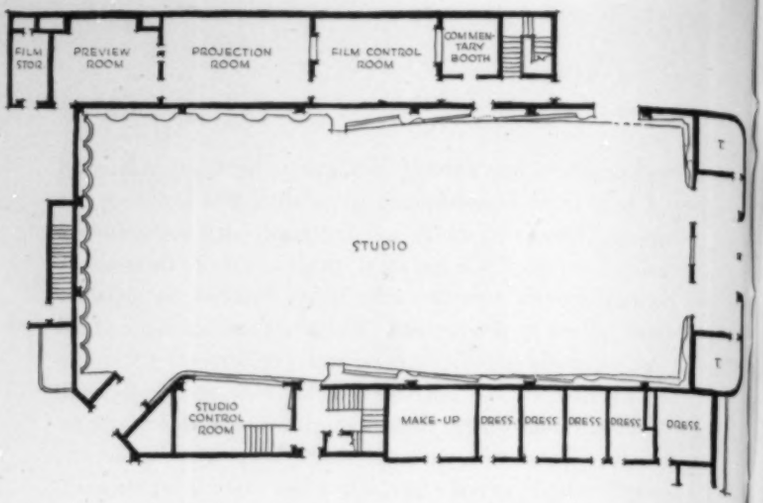
Considering its relative youth, licensing difficulties, high building costs, fantastic equipment cost, and the frequent introduction of substantially improved equipment natural in so young an industry, the TV situation is phenomenal. Color television (for which two systems — one mechanical, one electronic — are understood to be now feasible) can further complicate matters.

Preoccupation with technicalities of visual broadcasting has been accompanied by a low level of intrinsic quality of TV programs. Coincidentally, the purely architectural worth of many TV buildings also parallels program quality; the same factors contribute to this condition and, if only for the promotion value of a good building, the same dependence upon public opinion may bring improvement.

Sky-high equipment cost, newness, and experimentation lead to much remodeling of buildings for TV, particularly for big-city studios where network programs originate and where land and building costs are highest. Architectural opportunities are somewhat limited in the case of these large studios, but medium-sized studios offer many. By far the greatest number of TV stations now contemplated is medium-sized, each containing a

George W. Warnecke & Co., courtesy Monitor Roofing Co

Left, transmitter tower, Station WBZ, Boston, Mass.; 649 ft. tall, it is surmounted by a three-section turnstile TV antenna which is supported by a two-section pylon FM antenna. Combined antennae are 76 ft. long, weigh 7442 lb., atop a heavy-duty steel tower which expands from a 29-in. square top to a 75-ft. square base carried on concrete foundations. Contrast the elegance of this competently engineered design with the typical hodge-podge of receiving antennae on the roof of a New York apartment house (right)

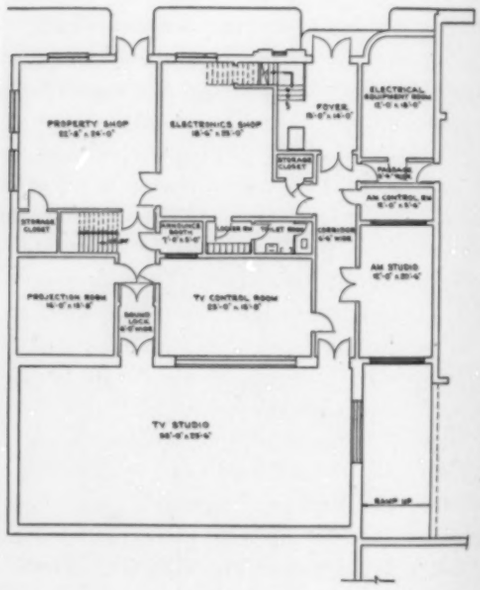


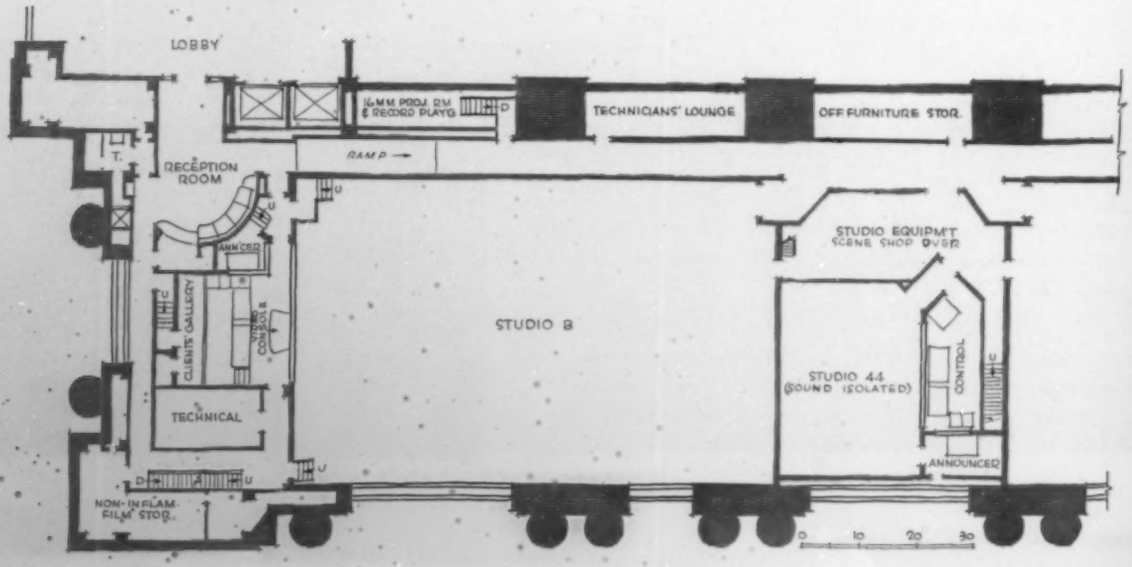
Above left, routes of coaxial cables and microwave relay facilities for television networks

Three ways of providing for television: above, NBC's Studio F, Hollywood, Calif., a converted radio studio; below, WFIL-TV, Philadelphia Inquirer station, built new, will also televise from the adjacent Philadelphia Arena and has remote transmitter in the Widener Building; bottom of page, part plan of WCBS-TV's New York studios in remodeled office space in the top of Grand Central Station

relatively small studio, mobile facilities, rebroadcasting facilities, control and transmission equipment, and offices. After these principal network links are established small studios will come along. Whether a small station can be designed to grow efficiently is an unresolved question.

For all the technicality of TV problems there is sound consulting advice available in the form of lighting, air conditioning, and sound control experts. Coordination of all types of equipment, and of spaces and techniques both borrowed and inherent in TV, is an architectural problem about which the TV station manager has much to say. He has opinions on the staggering circulation problem. He is an authority as well as a client; his decisions carry much weight, which may account for some makeshifts — even mistakes — which characterize many TV buildings. Certainly those stations in the design of which good architects have been employed demonstrate the value of competent architectural effort.





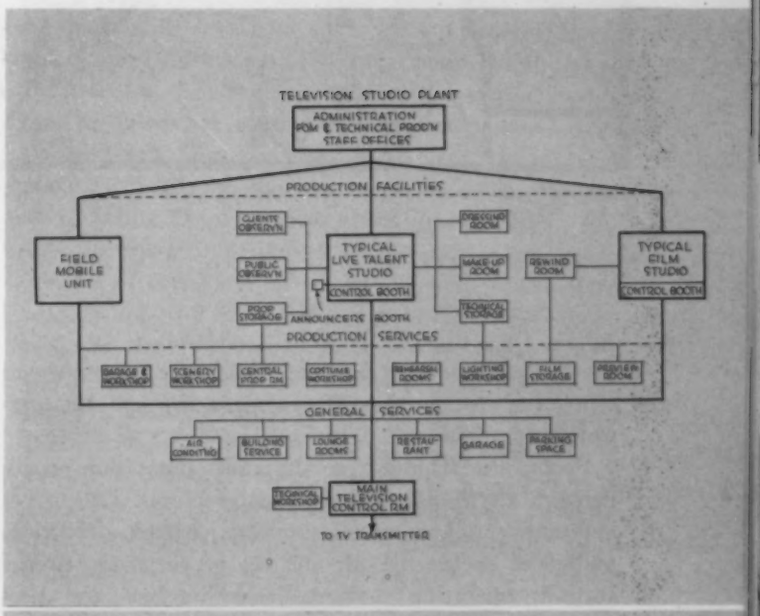
DESIGN OF TELEVISION STATIONS

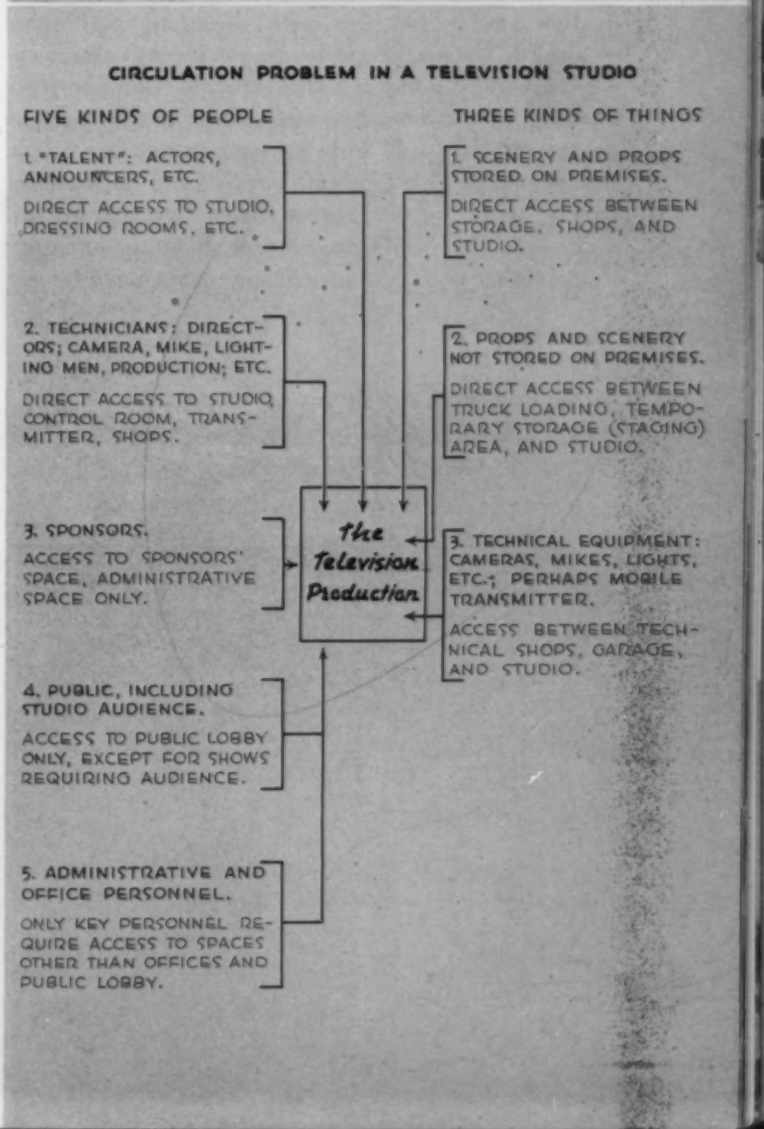
By J. P. Allinson

THE financial importance of television buildings is indicated not only by their increasing number but also by the high cost of their equipment; telecasting equipment, air conditioning, lighting and sound control equipment for the 59 stations now licensed runs well up into the hundreds of thousands of dollars. Add the expense of actual construction and the dollar outlay becomes truly impressive. Whatever the opinion of TV as a cultural medium (and a few recent programs have had critical acclaim), the 2,000,000 estimated viewers of the last Presidential election constitute an audience which cannot be ignored. The industry generally is in a developmental stage — its youth, scarcity of suitable space, and astronomical costs not only complicate the design problem but also make it necessary to limit this article to a survey of ideas in the field at the moment.

TYPES OF STATIONS

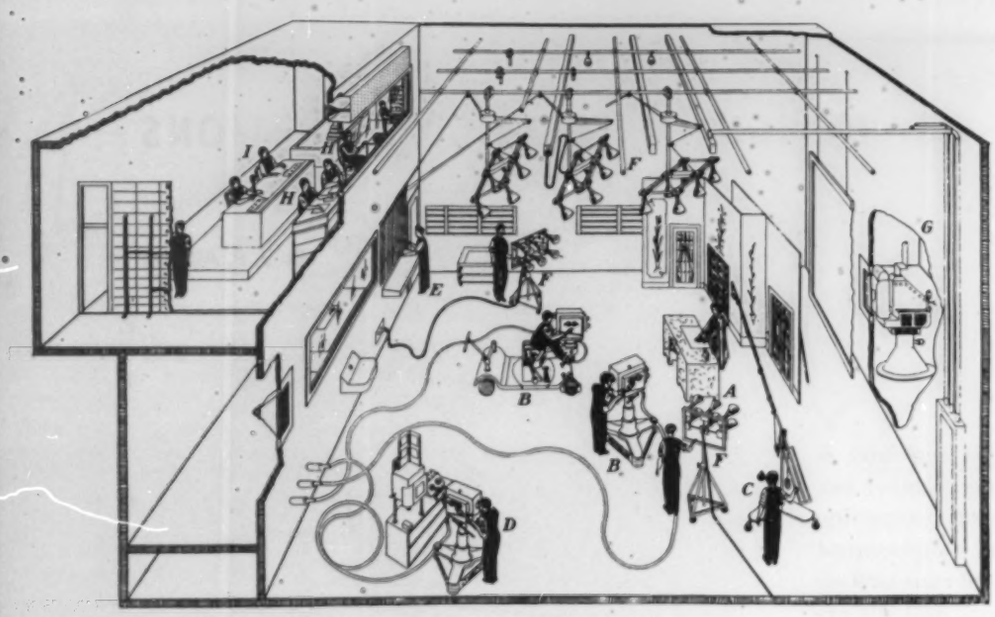
Network Originating Studios Many of the networks (ABC, CBS, NBC, Mutual, Dumont, and Don Lee) have recently completed or are about to open new plants. Several have tremendous expansion plans; most consider their present facilities experimental. The large central station in which network programs originate is most complex, likely to be scattered among several floors or even several buildings in the downtown part of a large city. Often it is a remodeling job, designed by the network's architectural staff. The typical large station contains numerous studios, each with a control booth, central control facilities, and a full complement of technical, production, and administrative areas. Such close scheduling of TV broadcasts is necessary, in order to make maximum use of the costly space and equipment, that *circulation* assumes paramount importance, and




CIRCULATION PROBLEM IN A TELEVISION STUDIO
FIVE KINDS OF PEOPLE
1. "TALENT": ACTORS, ANNOUNCERS, ETC.
DIRECT ACCESS TO STUDIO, DRESSING ROOMS, ETC.
2. TECHNICIANS: DIRECTORS; CAMERA, MIKE, LIGHTING MEN, PRODUCTION; ETC.
DIRECT ACCESS TO STUDIO, CONTROL ROOM, TRANSMITTER, SHOPS.
3. SPONSORS.
ACCESS TO SPONSORS' SPACE, ADMINISTRATIVE SPACE ONLY.
4. PUBLIC, INCLUDING STUDIO AUDIENCE.
ACCESS TO PUBLIC LOBBY ONLY, EXCEPT FOR SHOWS REQUIRING AUDIENCE.
5. ADMINISTRATIVE AND OFFICE PERSONNEL.
ONLY KEY PERSONNEL REQUIRE ACCESS TO SPACES OTHER THAN OFFICES AND PUBLIC LOBBY.
The Television Production
THREE KINDS OF THINGS
1. SCENERY AND PROPS STORED ON PREMISES.
DIRECT ACCESS BETWEEN STORAGE, SHOPS, AND STUDIO.
2. PROPS AND SCENERY NOT STORED ON PREMISES.
DIRECT ACCESS BETWEEN TRUCK LOADING, TEMPORARY STORAGE (STAGING) AREA, AND STUDIO.
3. TECHNICAL EQUIPMENT: CAMERAS, MIKES, LIGHTS, ETC.; PERHAPS MOBILE TRANSMITTER.
ACCESS BETWEEN TECHNICAL SHOPS, GARAGE, AND STUDIO.

The author and the editors wish to thank the following individuals and organizations for their assistance in compiling the information contained in this Building Types Study, for permission to reproduce drawings and photographs, and for their help in checking preliminary copy.

Television Networks: ABC, CBS, Don Lee-Mutual, Dumont, NBC and their engineering and publicity departments; TV Stations KNBH, WABD, WPIX, WRGB; Paul Adanti, General Manager, WHEN; L. E. Littlejohn, Chief Engineer, WFIL-TV; Kliegl Bros. Lighting; Television Associates Inc.; Anemostat Corp. of America; the editors of "Communications", "Electronics", "Televiser Monthly", and of General Electric's "Television Show Business" and RCA's "Broadcast News" and "RCA Review;" and J. W. Eriksen, Engineer, The Austin Co. Organization chart, top right, appears courtesy NBC.



1.

Requirements for live-talent studio; sketch by Engineering Dept., NBC. A, scene being televised; B, cameras; C, microphone boom; D, camera picking up titles and video effects; E, lighting controls; F, lights (only a few shown) adjusted from E; G, slide projector for rear projection of scenery; H, audio and video control; I, program direction

the *traffic department* becomes the nerve center where schedules, distribution of programs through the network, etc., are handled.

People and things (see diagram) must flow easily through the building; control is essential. Executives and managerial personnel, sponsors, visitors, and studio audiences ordinarily use one set of entrances to the station; operating personnel — technicians and production staff — another; talent — actors, performers — a third. The diagram indicates the necessity for keeping the various kinds of traffic separate. In a one-story building, production shops and storage rooms might be on the opposite side from spaces reserved for talent, who should be able to enter directly from the street or parking space to their dressing rooms. Costume storage, make-up and artists' lounge rooms should be adjacent; if on another floor, a quick-change room should be provided near the studio. Ample rehearsal space is needed.

Production spaces are like those in the legitimate theater, but have to be larger and more accessible because the TV show is put on for one performance only, not for a long run, which means storage for many types of properties and scenery and delivery space for many more; carpentry and paint shops for the continuous making or revamping of scenery for new productions, and wide corridors, sound locks, doors, etc., for moving large units expeditiously from shop or shipping entrance to studio. Production personnel includes stagehands, prop men, etc., who have no occasion to enter talent's quarters but must have direct access to the studio. Technicians include those who work in the studio itself — camera and microphone operators and lighting men — and those who man the control rooms — video and audio operators, etc. — both of whom have contact

2. Live studio, KGO-TV (ABC) in San Francisco, view from control room showing sound-deadened walls, ceiling; portable and ceiling lights, air ducts, 3 cameras; at bottom, monitors as seen by video technicians. 3. Proposed alteration of Civic Theater, Chicago, for ABC telecasts. 4. Daytime studio from audience seating, WABD (Dumont), New York. 5. Making a telecast, KNBH (NBC), Hollywood

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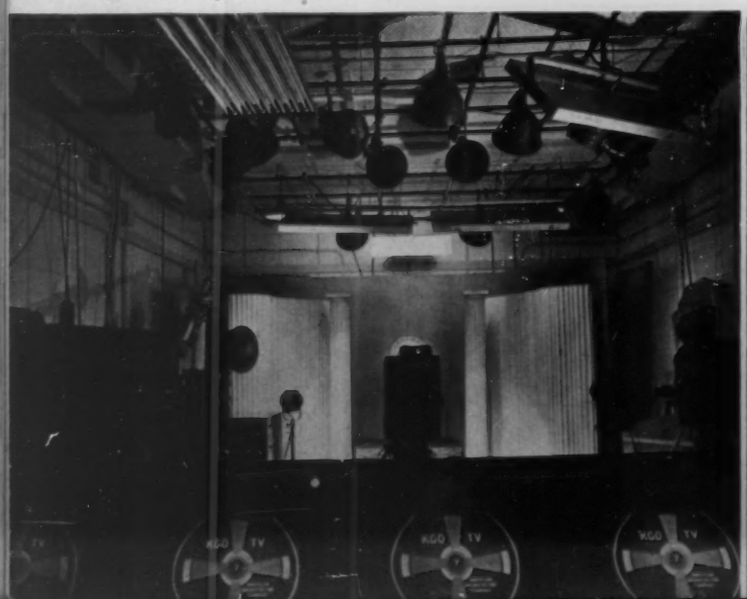

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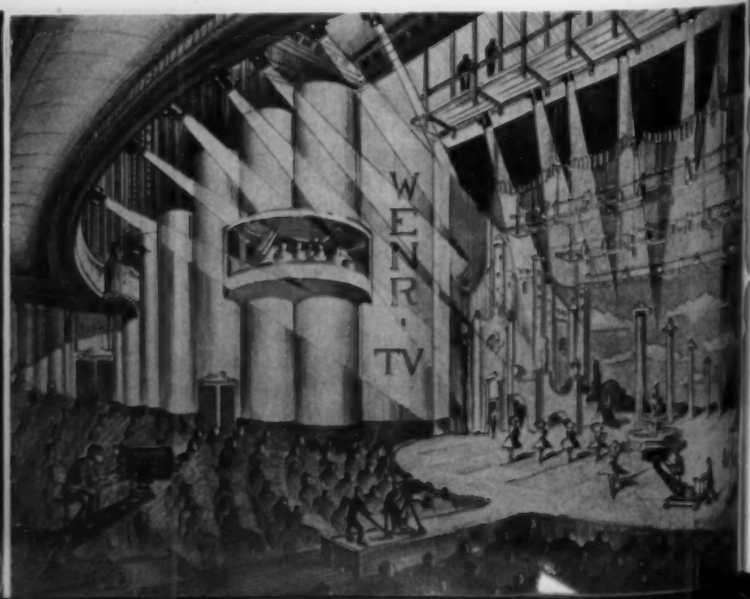

with the performers in the studio only. Technical spaces include not only the studio and master control rooms but also the transmitter room, equipment spaces and shops for working on equipment. It is convenient to have the garage for the mobile truck transmitter accessible to the technical shops. The entire production is supervised by a director (who works from the studio control room), one or more assistants (who work in the studio) and a script girl who is constantly at the director's elbow. The director talks to his assistants, lighting and production chiefs, and camera and microphone men over some type of intercom system: pocket radio, wired phone headsets, in some cases a low-volume loudspeaker.

In most studios audiences are not admitted, because they are the source of unwanted noise and because the congestion of equipment and personnel in the studio is so great that an audience cannot be allowed. Only in a few, and these mostly of the theater type for shows which demand audiences, is the public admitted. TV cameras require a great deal of space in which to maneuver — they are mounted on dollies which are pulled by men — and this also restricts the amount of space which can be given over to an audience. Audience circulation through the building must be very closely controlled. Many station operators would like to place similar limitations on sponsors as well, but this is rather difficult to achieve. Usually the sponsor has a booth completely separated from the studio and control room, with a glass wall into the studio for direct observation. CBS, in its new Grand Central studios in New York, places the sponsors in the control room itself, a practice which makes most program directors shudder. Regulations governing places of assembly must be respected.

Films, slides, commercials, etc., are dubbed into the TV program as it goes over the air from a telecine room, and announcers have a small studio; these are all grouped around the control room. In a large station, much dubbing in may be controlled from the master control room; it may also be done from the studio control. The transmitter and tower may be at the station or remote.

Very Small Stations At the opposite end of the TV building scale is the small local station for receiving network programs and making spot announcements, etc. This type is likely to be located at the ideal transmitter site, which may not be "downtown." Space requirements include a room for telecasting equipment and transmission, for network pick-up equipment, etc.; a small announce booth, telecine space and film storage. Personnel is usually limited; commercial and administrative offices are combined; minimum toilet facilities are provided. There may be a small room for costuming, make-up, etc., for the rare occasion when the local mayor will make a personal appearance on TV.

If there is any likelihood of televising local sports or other events, the station will have a mobile transmitter truck, which will require a garage. Often this space is so designed that the truck can drive virtually into the studio itself; on occasion the truck control equipment might be used instead of a studio control console (there is a difference of opinion on this practice). More common practice is to install, when the station is located at the transmitter site, a microwave receiver to pick up signals from the mobile transmitter. Switching between all the different types of programs is handled by the combination transmitter and master-control operator.

If the station transmitter has a downtown location, a small studio is probably essential because the possibility of telecasting simple studio shows is increased. Another variation, which interests a great many TV operators, has an out-of-town transmitter site and, downtown, a small plant containing film and slide projection facilities, small studio, announce booth, and control room which serves as master control, coordinating all program sources. The plant can be linked to the

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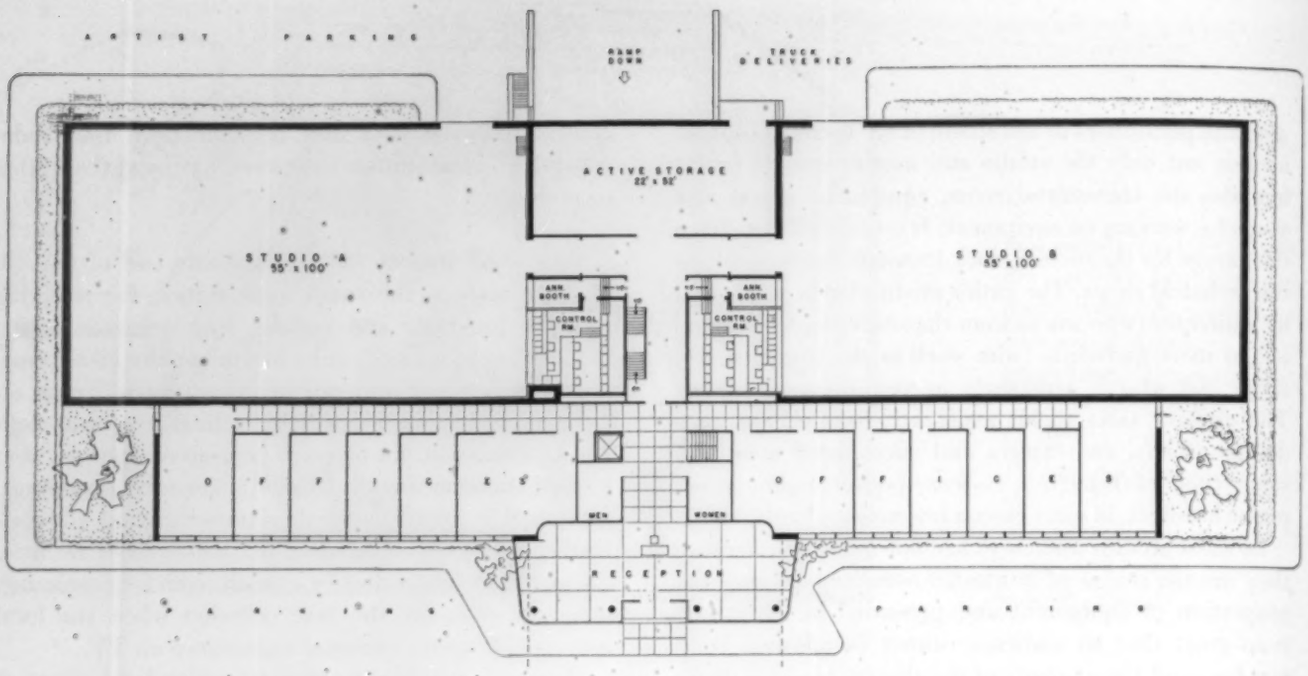

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transmitter by microwave; mobile signals can be received and coordinated at the downtown plant or at the transmitter. All these variations on the small station assume a tie-in to one or more of the networks; cost of producing a "live talent" show is prohibitive for the small operator. As the accompanying map shows, coaxial cables and microwave relays essential for direct distribution of network programs are not likely to cover the entire country as rapidly as the demand for TV stations requires. The industry's answer to this dilemma is *kinescope recording*, or precision photography of actual TV programs. The technical difficulties are being solved, and kinescope promises to become a major source of network-quality programs.

Intermediate Stations Between the two types outlined — definitions here are arbitrary, assumed solely for convenience — lies a third principal type. It may be considered an expansion of the small station; it incorporates many features of the key network station, but is not considered adequate for full-scale network program origination. Although this type may contain more than one "live" studio, it can be planned quite successfully for a single, fairly large studio and control room around which are grouped announce booth, telecine room, network receiving equipment and transmitter room; from the one control room all master switching between studio, film, and remote programs can also be handled. The distinction between this and some variations on the small studio lies principally in technical facilities for programming. The studio itself is ordinarily larger to accommodate the desired 3 image orthicon TV cameras and mike on a telescoping boom, but otherwise total space requirements are little greater.

The telecine room here will probably contain two "multiplexers," or angular mirror setups for film and slide projectors which make possible the use of a single stationary TV camera (rather than a moving TV camera to be shuttled back and forth between movie projectors, which is common in smaller studios). Facilities for film processing, airing and editing should also be provided. It should be possible to add a second studio efficiently in the future; this may be a rehearsal room at the beginning. An eventual master control room and more office space should also be envisioned at the outset, and some provision must be made for the ultimate wiring system.

Even for the minimum, it is often advisable to plan for two studios, either both the same size or one fairly large — say 25 or 30 by 40 feet — and one small, for one-set performances. Adding the master control room eases coordination of technical facilities, permits operation by one man during long network periods, permits equipment repairs and maintenance without disturbing facilities; and one man can keep continuous watch over equipment performance. The projection room is best located next the master control room; when two studios are planned, a satisfactory working arrangement is to have this pair of spaces between the studios, with the studio control rooms above.

10. *Studio suggested by William Foss, TV consultant, to use mobile unit controls at first, to which more equipment and another studio may be added efficiently*

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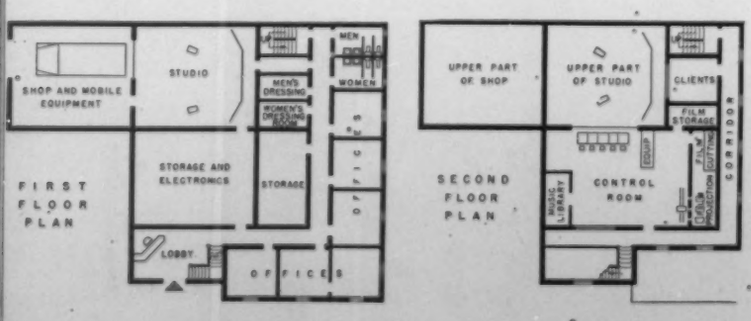

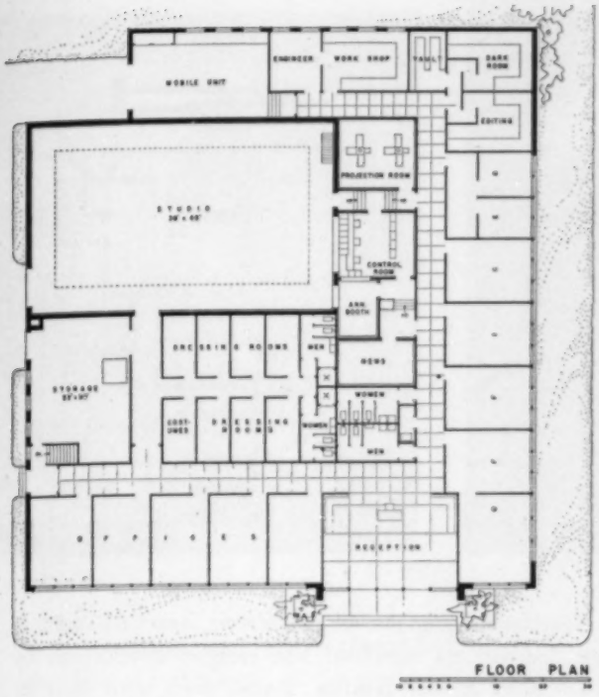

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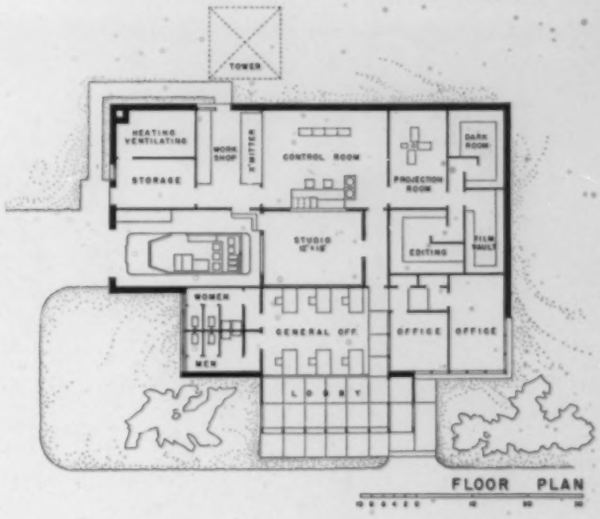

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BUILDING DESIGN CONSIDERATIONS

Whatever the station size, rigid economy and compactness are essential. Equipment cannot be skimped, but little can be spent on impressive architecture and even such considerations as noise control and acoustics are handled inexpensively. Compactness also helps the plant to run smoothly, reducing operating costs. Many of the schemes illustrated are admittedly faulty because many existing studios are remodeling jobs or revamped radio studios, in which space and structure impose serious limitations.

The building designer will cooperate with the station manager or engineer, network advisors to affiliates, the video engineer, and probably a TV consultant. He will learn that a TV station requires three or four times as much space as a comparable radio station. Space estimates are difficult to make, but NBC engineers, for instance, suggest that a single live-talent studio entails five times the studio area for auxiliary spaces; that for a station containing three live studios the proportion is reduced to three times studio area. Production methods are almost certain to change, so flexibility of the original space and provision for expansion are important. TV plants have been developed both horizontally (all principal areas on one main floor) and vertically (multi-story). The horizontal plant offers production advantages, is easily expanded, but requires much land. Multi-story schemes may cost less initially but are difficult to expand; when enlarged, the plant's facilities may be scattered, leading to difficulty — and consequent high cost — of operation.

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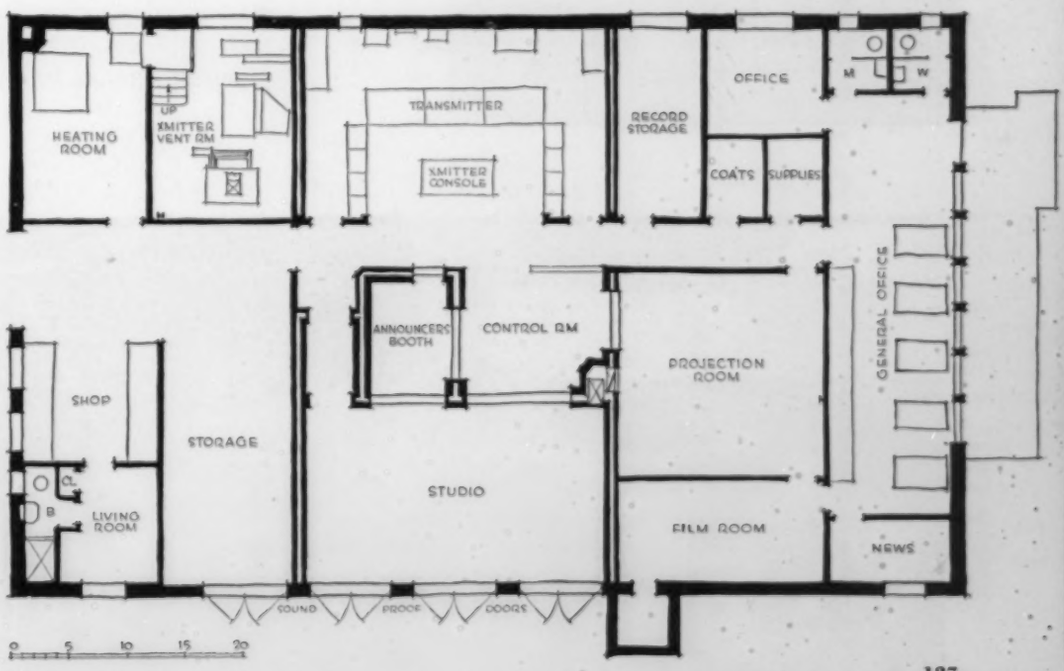
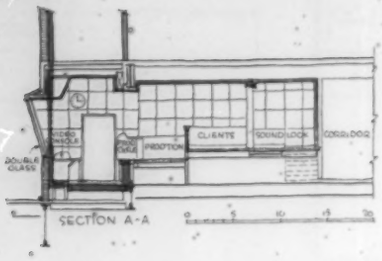


6, 7, 8. Floor plans of typical very large, intermediate, and small stations developed by Rene Brugnoni, Archt., and Ben Adler, TV Consultant. 6 has rehearsal rooms, building equipment, etc., in basement; master control, equipment, etc., on second floor. 7 has scene shops etc., under storage and dressing rooms, elevator to storage space. 8 envisages use of mobile equipment for control. 9. Plan, WXEL, station now under construction, Parma, Ohio; Rene Brugnoni, Archt. Note resemblance to typical schemes; also close relation between control and transmitter space. Studio wall opens up for supervision of telecasts from adjacent sports field



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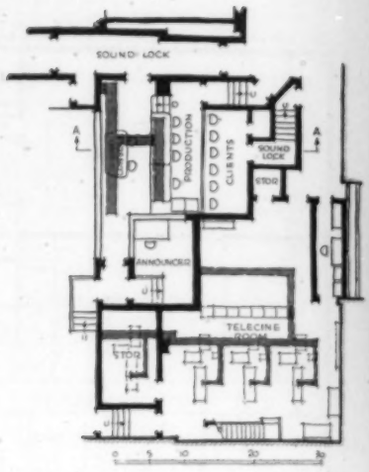

Above: 11. Section and plan through control room, new CBS studios in New York. Sponsors are separated from program director only by a rail, which is not common practice. Shaded areas show ducts for electronic connections in control room and telecine studio

Below: 12. Control room equipment and sightlines suggested by General Electric engineers

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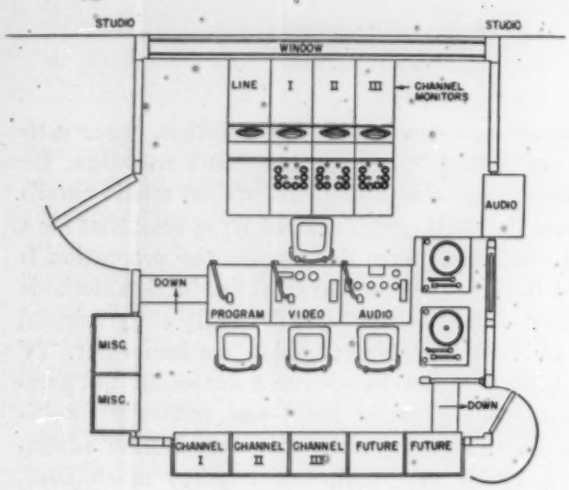

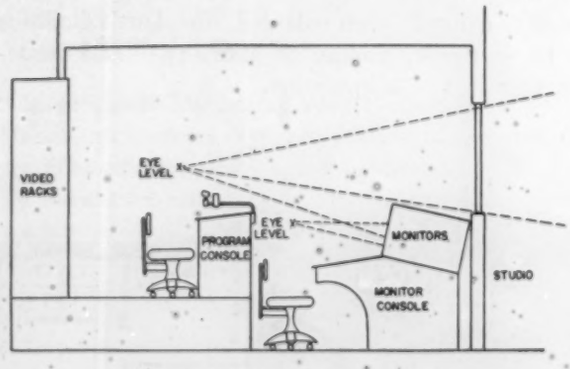

Considerable parking area on the site is desirable. Convenient access for truck deliveries and garage space for the mobile TV unit are musts. Noise in the locality, airborne or carried into the studio by the soil or building structure, may cause trouble; occasionally this problem may render undesirable an otherwise satisfactory location. If the building has other tenants, their noise-producing activities must be considered; pumps, fans, printing presses and industrial machinery are offenders.

"Live" Studios **Technically, video and audio equipment constitutes the heart of the TV plant, but building design usually centers around the studio for live talent. Here the practical requirements of TV — sometimes as many as eight sets ready at one time in one studio, room for the numerous operating, producing and acting personnel, equipment, and lighting evolved from stage and movie techniques — take precedence over such matters as acoustics. For a non-audience studio, NBC finds an 18-foot ceiling the absolute minimum, with some disadvantages; 22 feet is preferred, 25 desired, and for**

Control Rooms. 13, 14, Studio 8G control, WNBT, New York, is on mezzanine. 15, WABD Studio A. 16, Master control, WFIL, Philadelphia

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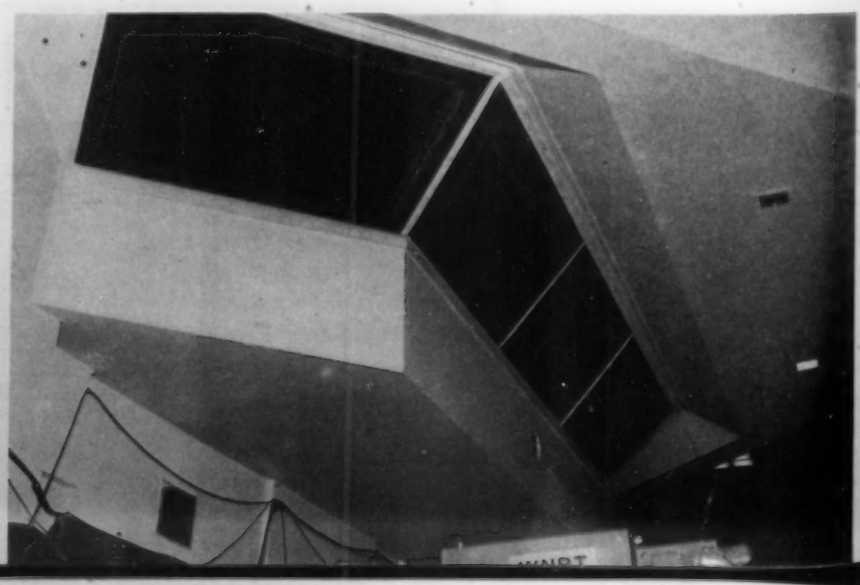

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19. *Installing equipment, telecine studio, KNBH, note floor chases for electronic wiring.* 18, *Telecine studio, WHEN, Syracuse, N.Y., stairs lead to control room.* 17. *Transmitter building, Station KNBH, Hollywood, Calif. Note "turnstile" TV antenna*

some studios designed to permit up-angle shots, 35 feet. Some telecasters believe there is no maximum, others that more than 25 feet is wasted; if sets are to be flied or if lights are to be manipulated from a suspended catwalk more height is needed; air conditioning such high rooms is costly. All these factors must be weighed. In area, 25 x 40 ft. is probably the smallest practicable, 30 x 50 is a desirable minimum, 40 x 60 or 40 x 80 is preferred; yet many stations have smaller studios. Entrances should be protected by sound locks and even if the studio is not sound-isolated, it is often surrounded by corridors, storage rooms or offices to reduce noise penetration. Building equipment, which is more fully discussed below, has some definite effects upon studio design.

Auditorium or Theater Studios Shows which demand audiences introduce the problem of providing for 300 to 500 people — seldom more — extraneous to the production, who cannot be admitted to the studio floor and whose convenience has less importance than that

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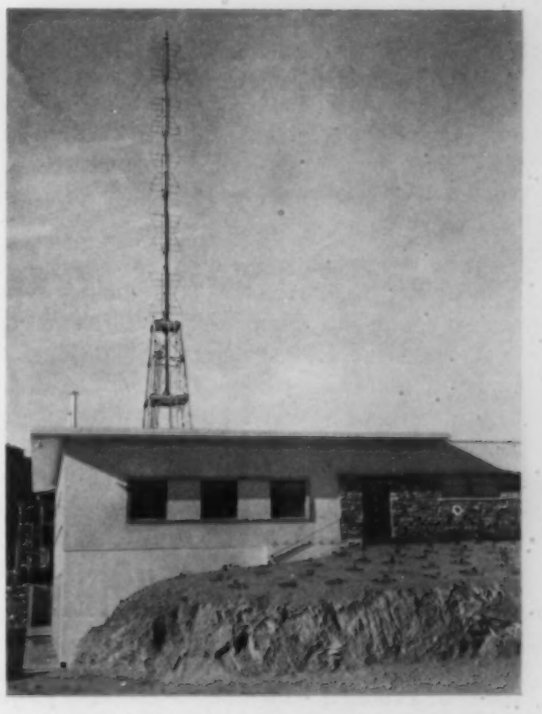

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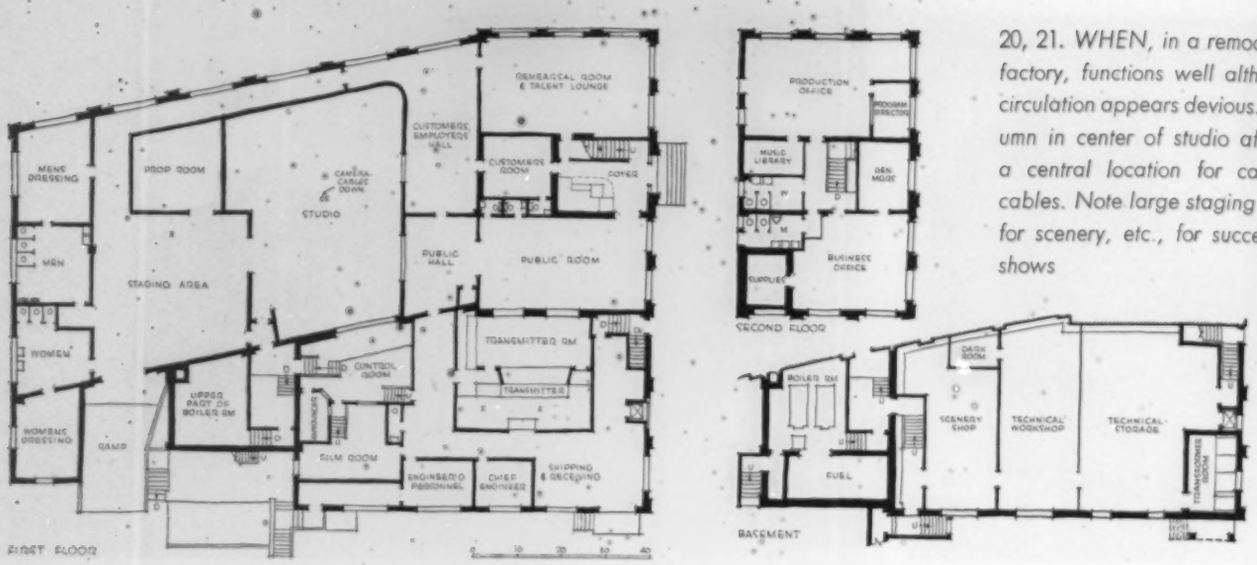

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20, 21. *WHEN, in a remodeled factory, functions well although circulation appears devious. Column in center of studio affords a central location for camera cables. Note large staging area for scenery, etc., for successive shows*

of the audience which sees the telecast on a $199 receiver. The studio audience cannot be close to the performance because cameras and microphones must move about freely. It is often seated in a steep balcony (which may require a high ceiling), separated from the studio floor by a rail. Since many productions in this type of studio are musical, the acoustic properties may receive more attention. Several radio studios have been adapted for TV audience shows and function fairly well. Adaptation of legitimate theaters has both proponents and opponents; lighting and microphone installations are difficult enough, but providing for the desired three TV cameras becomes a real problem. There is usually one camera in the center; ideally this should be able to "dolly in" for close-ups, which may necessitate a runway similar to that in a burlesque theater. To give roundness to the televised actors and reality to the telecast performance, the other cameras may be at the sides of the auditorium, one perhaps lower than another. Only after experimenting with camera angles can camera platforms be built in with surety. The control room in a remodeled theater might be in a side box; in a new theater it might be under the raised audience space.

Film or Projection Studio These have in the past consisted of a room in which movie and slide projectors are positioned against glazed ports in one wall, on the other side of which a TV camera has been shuttled back and forth to pick up succeeding reels. Recently multiplexers (previously mentioned) have been developed; space requirements for these appear on accompanying plans. Much movie film is 35 mm. and inflammable; for this, fireproof storage vaults, vented to the outdoors, are needed. 16 mm. film, non-inflammable, is also used and requires cabinets only for storage. Both film projection and kinescope recording (which is to TV as transcription is to radio) necessitate processing, cutting and rewind space.

Announce Booth Usually placed so it has a view through double glazing into both studio and control room, the announce booth in some large stations is isolated from the studio. Occasionally it is supervised only from the master control room. Whatever its location, the booth is usually an interior room for a single person, who requires an audio and a video monitor like those in the control room.

Control Rooms The studio control room contains video consoles which house part of the electronic equipment and monitors which show the picture recorded by each TV camera; racks for more electronic equipment; more consoles for audio control; at least two "turntables" (record players); a monitor TV screen on which the actual telecast appears; and room for two or three video operators, an audio operator, the program direc-

25. *Control room, WHEN, showing windows into film room and announce booth. Operating desk (another variation on program director's equipment) in foreground, video console just visible at lower right corner*

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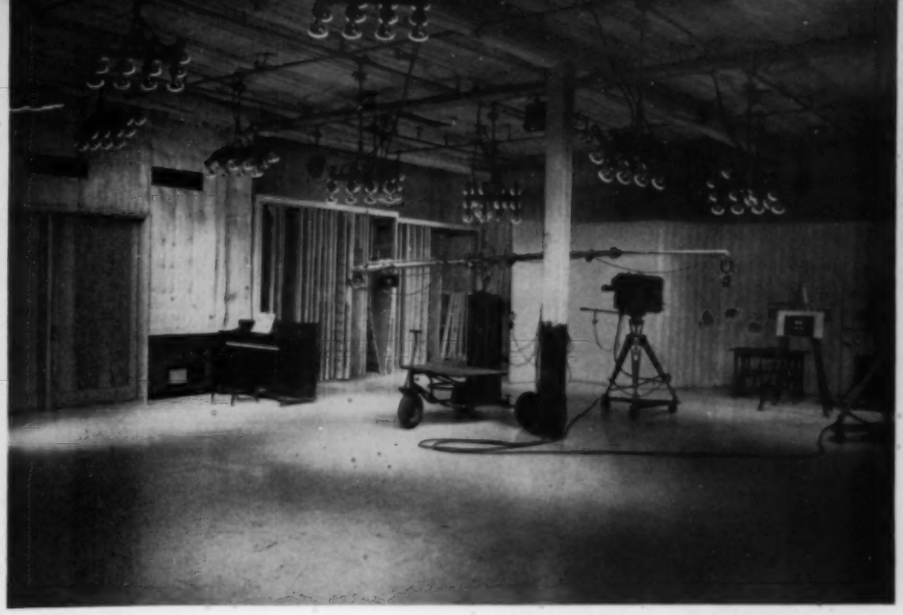

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22

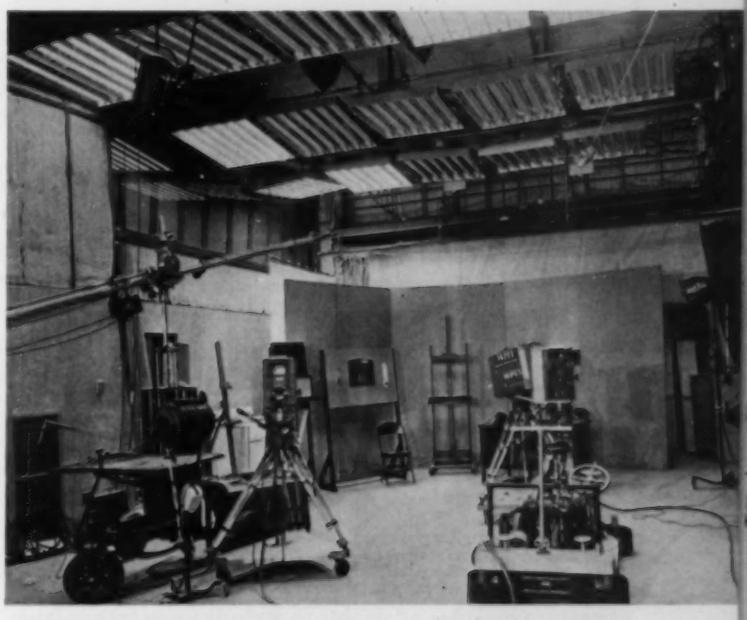
22. *Lighting by incandescent reflector lamps, WABD.* 23. *Lighting with slimline fluorescent banks, WPIX, New York*

tor, and often a script girl. For a large studio the control room might be 16 x 24 ft.; for a medium-sized studio, 14 x 16 ft. Equipment is usually though not always set on two levels, with the director and audio operator 2 ft. above the other operators, so the director can see over the video technicians' heads. Ceiling height is 8 ft. above the higher level. In most cases the control room is centered on one long wall of the studio, with a double-glazed window set with its sill 3′ 10″ to 5 ft. above the studio floor, and with the lower control room floor 2 to 4 ft. above the studio floor. In other instances, the studio control room is a full story above the studio floor; sometimes the window is flush with the studio wall, sometimes it projects into the studio and is glazed on three sides; there are those who believe the director should work entirely from the monitors, in a control room which has no view at all of the studio.

The master control room, required where there are more than two studios, is similar in equipment to studio control, but need not have a direct view into studios. Here switching from one to another program and ultimate refining of the telecast are done. This may be a very large space; for a two-studio station, 15 x 25 ft. to 18 x 26 ft. should suffice. In a one-studio station master and studio control may be combined, or there may be one control room for the live studio and a combined master-and-film-studio control. The combination can be accommodated in a 16 x 17 ft. room with an additional equipment room about 9 x 17 ft. Master control consoles may be arranged in U shape for operating convenience. In WJZ-TV's new studios, the film studio has a separate control room from which film may be fed into any studio as well as telecast independently. In the very small station everything is controlled from one room, which may also contain part of the transmitter equipment.

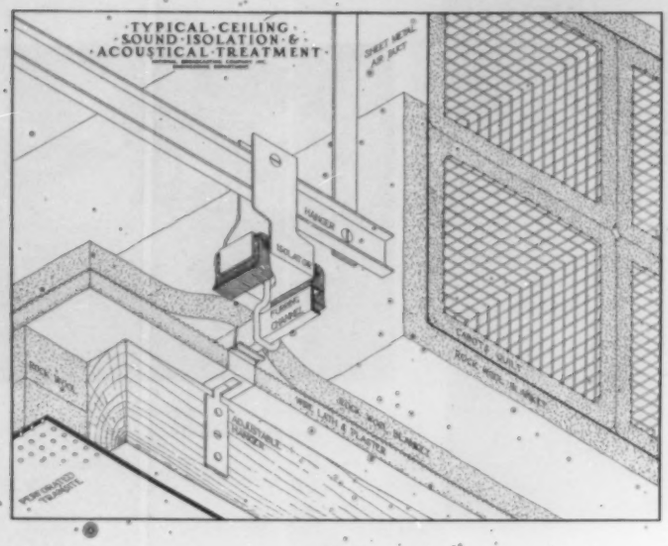
Transmitter Rooms, Technical Shops and Offices Method of operation and size of the station govern transmitter room requirements; for a one-studio station, all transmitter equipment and personnel can be accommodated

23



24. *Lighting catwalk and fixtures suspended on rods, WCBS-TV, New York. Fixture positions are set from below with poles or from ladders*

24



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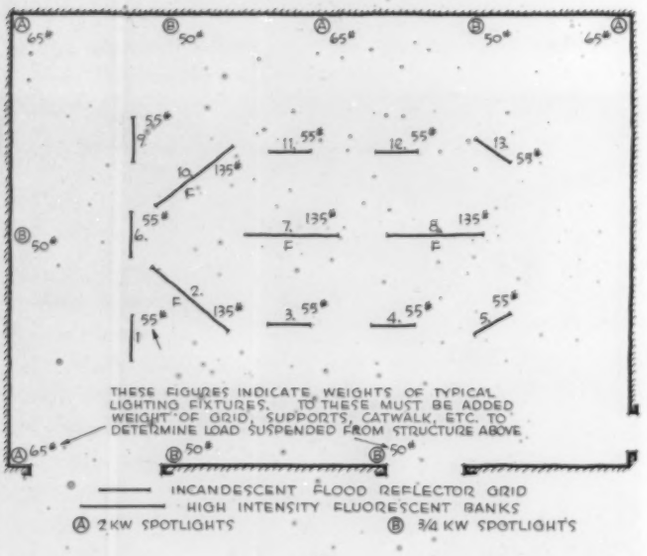
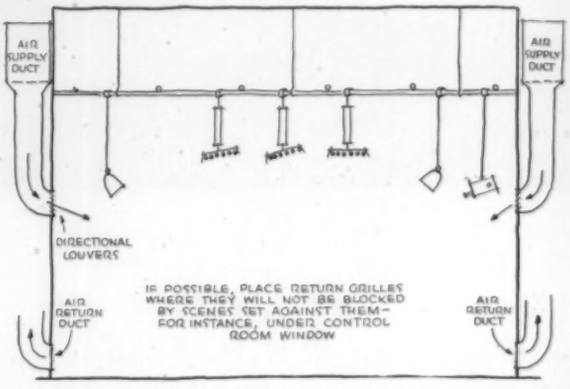
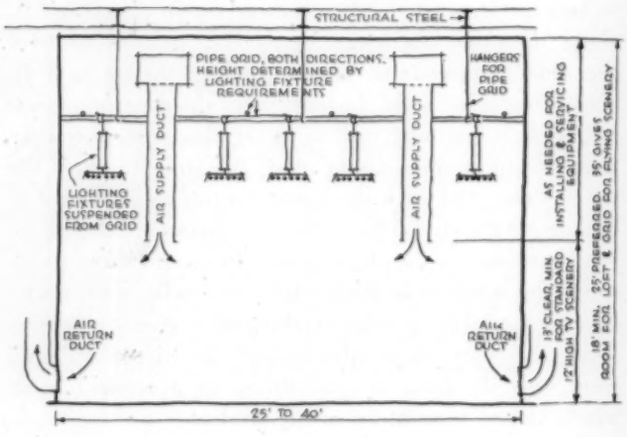

THESE FIGURES INDICATE WEIGHTS OF TYPICAL LIGHTING FIXTURES. TO THESE MUST BE ADDED WEIGHT OF GRID, SUPPORTS, CATWALK, ETC. TO DETERMINE LOAD SUSPENDED FROM STRUCTURE ABOVE
INCANDESCENT FLOOD REFLECTOR GRID
HIGH INTENSITY FLUORESCENT BANKS
Ⓐ 2 KW SPOTLIGHTS
Ⓑ 3/4 KW SPOTLIGHTS

27

26. Standard sound-isolating construction, NBC; note method of subdividing air duct. 27. Typical lighting fixture layout for a small live studio; fixture weights are obtained from manufacturers. 28, 29. Air conditioning and lighting considerations; method shown in 29 is seldom practicable. 30. In Navy experimental studio for teaching by television, subjects televised are relatively fixed in position, hence lighting is nearly constant in direction and center-ceiling air outlets become possible


AIR SUPPLY DUCT
AIR SUPPLY DUCT
DIRECTIONAL LOUVERS
IF POSSIBLE, PLACE RETURN GRILLES WHERE THEY WILL NOT BE BLOCKED BY SCENES SET AGAINST THEM — FOR INSTANCE, UNDER CONTROL ROOM WINDOW
AIR RETURN DUCT
AIR RETURN DUCT

28


STRUCTURAL STEEL
PIPE GRID, BOTH DIRECTIONS. HEIGHT DETERMINED BY LIGHTING FIXTURE REQUIREMENTS
HANGERS FOR PIPE GRID
AIR SUPPLY DUCT
AIR SUPPLY DUCT
LIGHTING FIXTURES SUSPENDED FROM GRID
AS NEEDED FOR INSTALLATION OF LIGHTING EQUIPMENT
18' MIN.; 25' PREFERRED. 35' GIVES ROOM FOR LOFT & GRID FOR FLYING SCENERY
AIR RETURN DUCT
AIR RETURN DUCT
13' CLEAR MIN. FOR STANDARD 12' HIGH TV SCENERY
25' TO 40'

29

in a room approximately 24 x 30 ft. In other cases the room must be appreciably larger. Occasionally station operation makes it advisable to include some transmitter equipment in the master control room, sometimes in a combined studio-master control. An engineering workshop is needed for equipment maintenance and storage, and the chief engineer usually needs a private office. When the transmitter tower is not at the studio location, part of the equipment may be at the studio and part at the transmitter building, or all at the transmitter, where an announce booth may also be included. A direct line of sight is required for relaying signals from studio to remote transmitter by microwave but not when signals travel by coaxial cable.

30

Production and Talent Areas For live talent (actors, lecturers, performers), provisions are much like those in the legitimate theater: direct access from building entrance, dressing and make-up rooms, toilets, a lounge, all dependent in size and number upon the extent to which live shows are contemplated. Production areas are also similar to those in the theater, with the added considerations that shows must change quickly (meaning immediate, easy access), that many articles are borrowed or rented for one performance only (necessitating truck deliveries convenient to the studio), and that many of these objects are large and weighty (requiring wide entrances, floors capable of bearing heavy loads and with durable surfacing in studio, shops and delivery areas). Spaces required include a scene dock

(*Continued on page 178*)

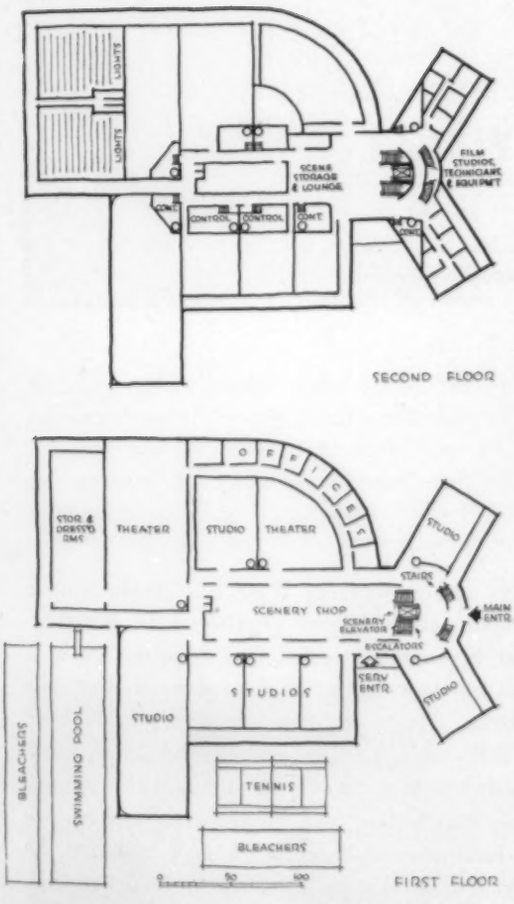
Suggested TV theater, audience space is elevated above production floor, and extends over it to give room for camera manipulation

by Elwell, Art Director

NBC Television

THE TELEVISION PRODUCING PLANT

Notes on some essentials, excerpted from a comprehensive study made by one of the industry's top designers



First and second floors, suggested TV building; basement houses storage, rehearsal rooms, ports for underwater shots into swimming pool; third floor, restaurant, etc. Adjacent sports facilities make possible telecasting under studio conditions.

STRAIGHT LINE travel is essential for efficient television production. For quick moving, everything visual (scenery, props, effects) should be on one level, and all audio and video control should be on another level to avoid interference. To reduce handling, mechanical and manual, of scenery, props, and electronic equipment, one should be able to move it directly and *horizontally* from rolling transportation into place in shop or studio. Even using an elevator consumes time, which is of prime importance. Hence it is advisable to set first floor level at the height of a truck bed above grade.

A TV plant functions best if designed at the outset for maximum likely performance — 24-hour telecasting — and, if this is not immediately feasible, reducing the scheme, but always so that additions can be made without impairing efficiency. Building size depends upon quantity of rebroadcast network programs plus number of "live" hours desired. Circulation is complex; in the accompanying plans, the 10-ft. corridor surrounding the shop is a sound baffle as well as a hall in which production and technical personnel can move quickly from studio to studio while, equally quickly, scenes, costumes and props, perhaps from two different shows, may also be passing. The public (audiences) is never permitted to enter the first floor or the studios proper; it moves directly to the second, to seating areas of TV theaters only. Audiences are composed of 300 to 500 people per show.

A studio here means a workshop for producing TV shows which need no audience; a TV theater, for those which do need audiences. Two theater types are shown, a large one for plays, musicals, symphonies, basketball, etc., and a smaller for lectures, soloists, and other restricted presentations. Live telecasts require a studio not smaller than 30 by 50 ft., with a normal ceiling height of 18 ft. to accommodate 12-ft. high scenery; the main sight interest is 6 ft. above the floor, centered about an individual's head. The exceptional high-angle shot may demand a 28 ft. ceiling, so one studio this high is advisable. Rehearsal space under all studios, exactly the size and shape of the studio above, permits exact blocking out of action, cameras, etc.

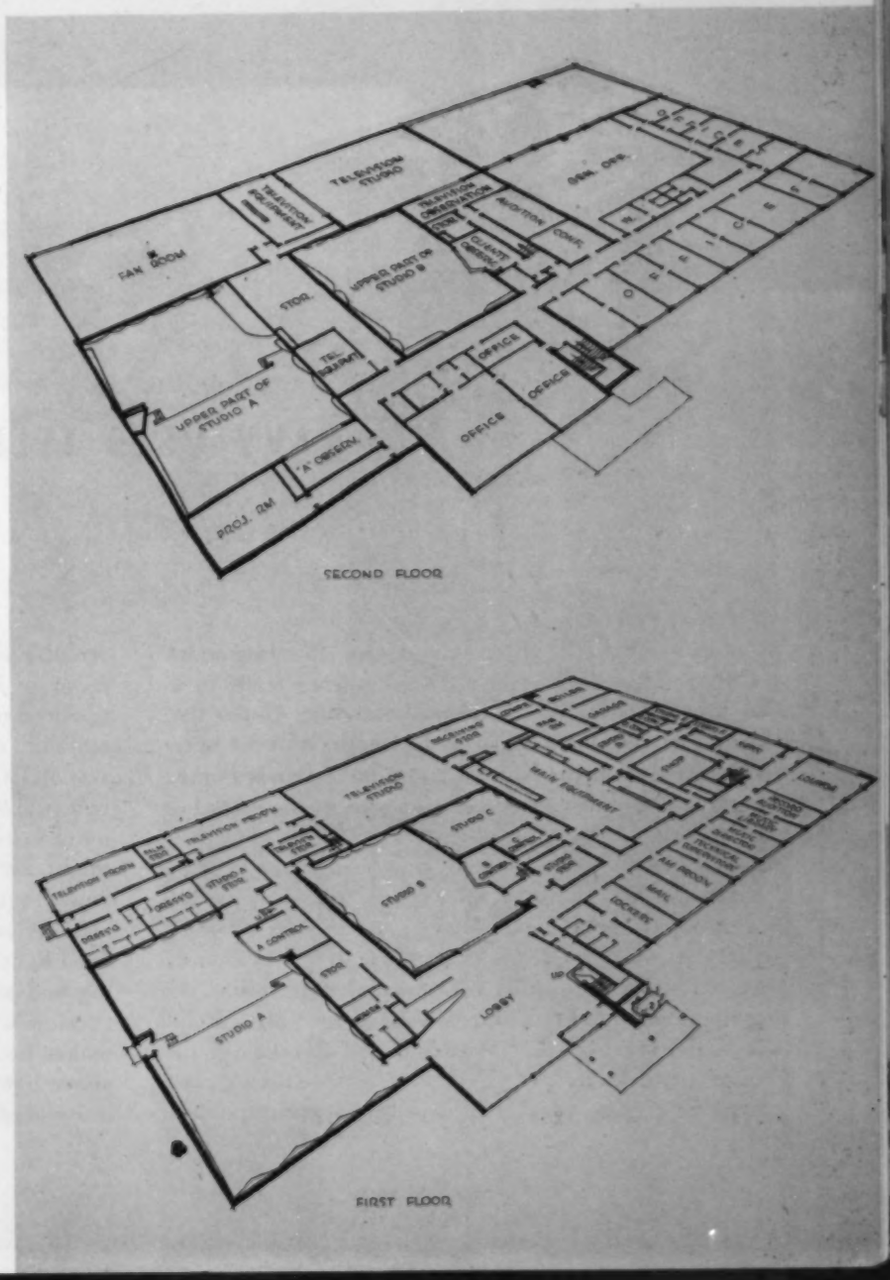
WBZ RADIO AND TELEVISION CENTER

Architectural Dept., Westinghouse Electric Corp., Designers

Boston, Massachusetts

IN 25 YEARS of broadcasting WBZ has grown from a simple monks-cloth-draped penthouse at Westinghouse's East Springfield works, first to quarters in a succession of hotels, now to this new plant on Boston's Charles River, housing WBZ-WBZA, WBZ-FM, WBZ-TV. Television studio (45 by 50 by 23 ft. high, sound-deadened with mineral wool on walls and ceiling) and control, projection and production spaces are grouped so facilities common to TV and radio can be used jointly. Circulation is particularly well handled. Auditorium-studio A, primarily radio, has TV camera and lighting outlets, seats 160, is 35 by 68 by 18 ft. high with stage 22 by 30 ft. TV film, network, studio and remote shows are controlled in TV equipment room. Studio flooring, left, is rubber tile to take heavy traffic.

Above, WBZ-TV mobile truck. Below, film projection room: TV cameras, movie and slide projectors and multiplexers; film camera control consoles in foreground. In plan, note segregation of public, administrative, talent, technical and production traffic; also receiving space near equipment room and TV studio, actors' rooms serving TV and radio studios.



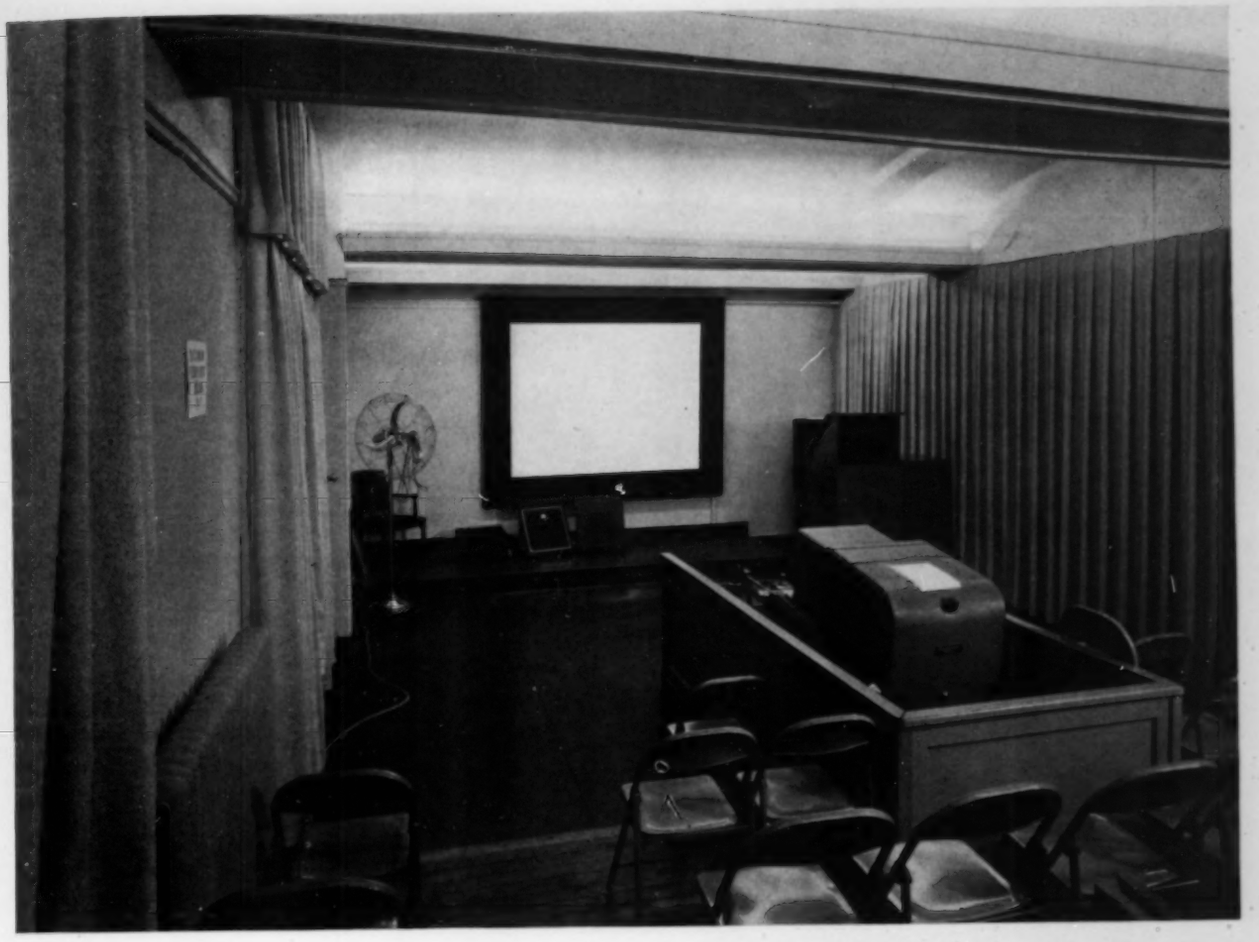
Special Devices Center, U. S. Navy

Sands Point, N. Y.

NAVY USES TELEVISION FOR TEACHING

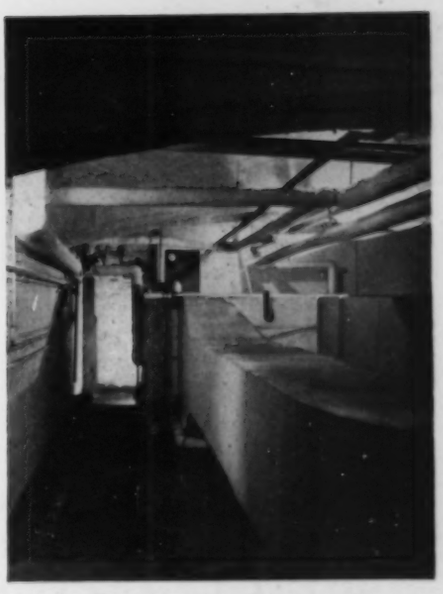
EXPERIMENTAL television broadcasts to classrooms distant from the studio are now being made in a Navy investigation of TV for mass training. Under the direction of the Office of Naval Research, lectures were first beamed from the Navy TV station at Sands Point, Port Washington, N. Y., to a classroom at the same location. Last January thrice-weekly telecasts began to the Merchant Marine Academy 5 miles away; soon the broadcasts, via cable and microwave, are expected to be utilized as far away as Squantum, Mass., and Anacostia, Md. The TV lectures are part of the standard NROTC curriculum in 52 colleges and universities. A thorough evaluation of the TV-training program is being supervised by the Department of Psychology of Fordham University.

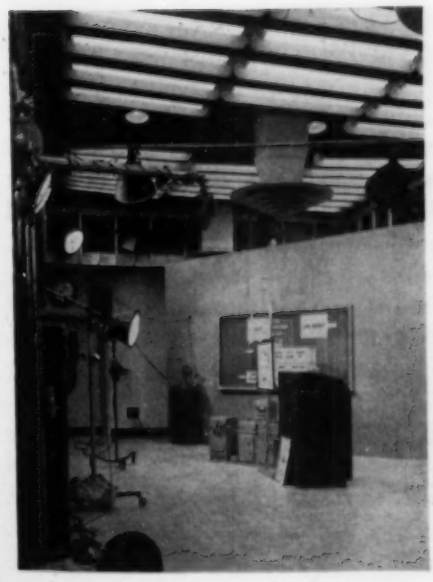
Achieving a personal relationship between the instructor in the studio and the trainee in a distant classroom is an important objective. The Navy has announced tests to develop a TV classroom, inquiring into suitable size, shape, seating, acoustics, illumination, size of TV screen, and placement of microphones which will enable trainees to ask questions directly of the remote instructor. Eventually a prefabricated classroom might be developed. In the studio, because participants' activities are more localized than are those in commercial TV, lighting can be to a great degree fixed; fixed lighting sources reduce interference between lighting and air outlets placed as shown. This permits an extremely efficient air conditioning system, one which makes no attempt to condition the unimportant space above lighting fixture level. Air conditioning apparatus is isolated against sound and vibration transmission.

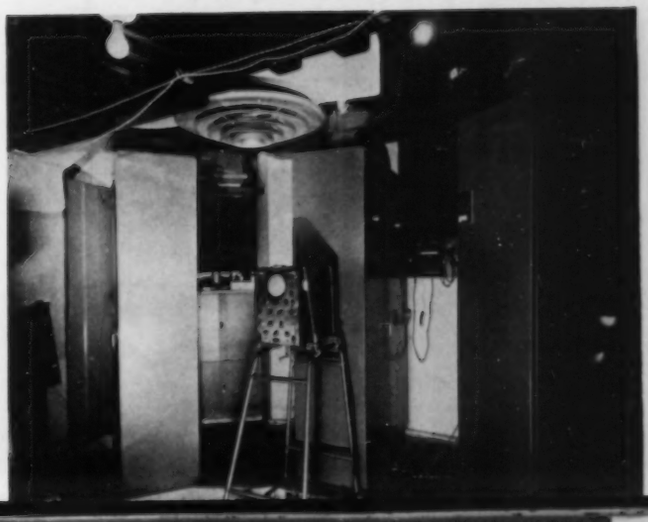


Photos this page by Joseph W. Molitor

Facing page: TV control room and studio, with lecture and demonstration in progress. Above, experimental receiving classroom; right, large-sized air conditioning ductwork, sound-deadened, in basement below studio. Bottom left, studio lighting (fluorescent troffers, fixed and portable floods, spotlights) and air conditioning outlet in center—possible only when lighting is relatively fixed. Bottom right, electronic racks, accessible front and rear for ease in servicing.





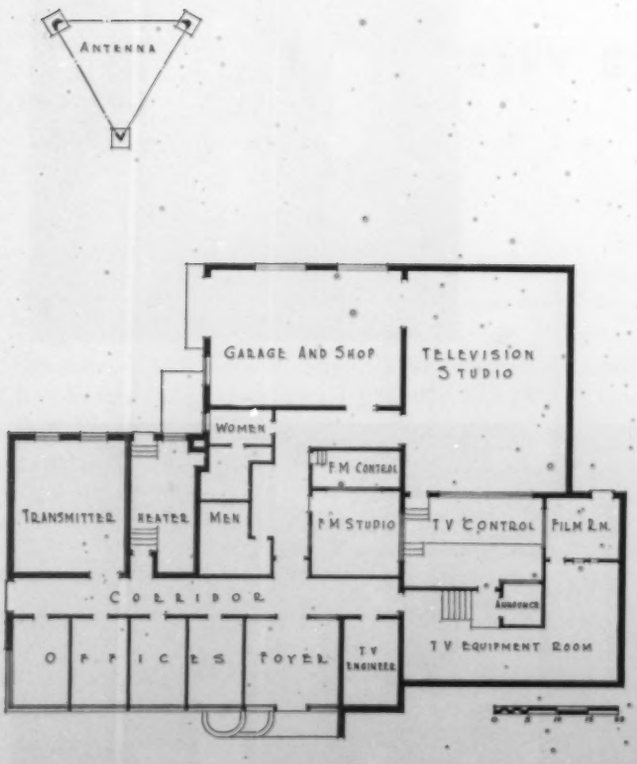


WICU

Erie, Pa.

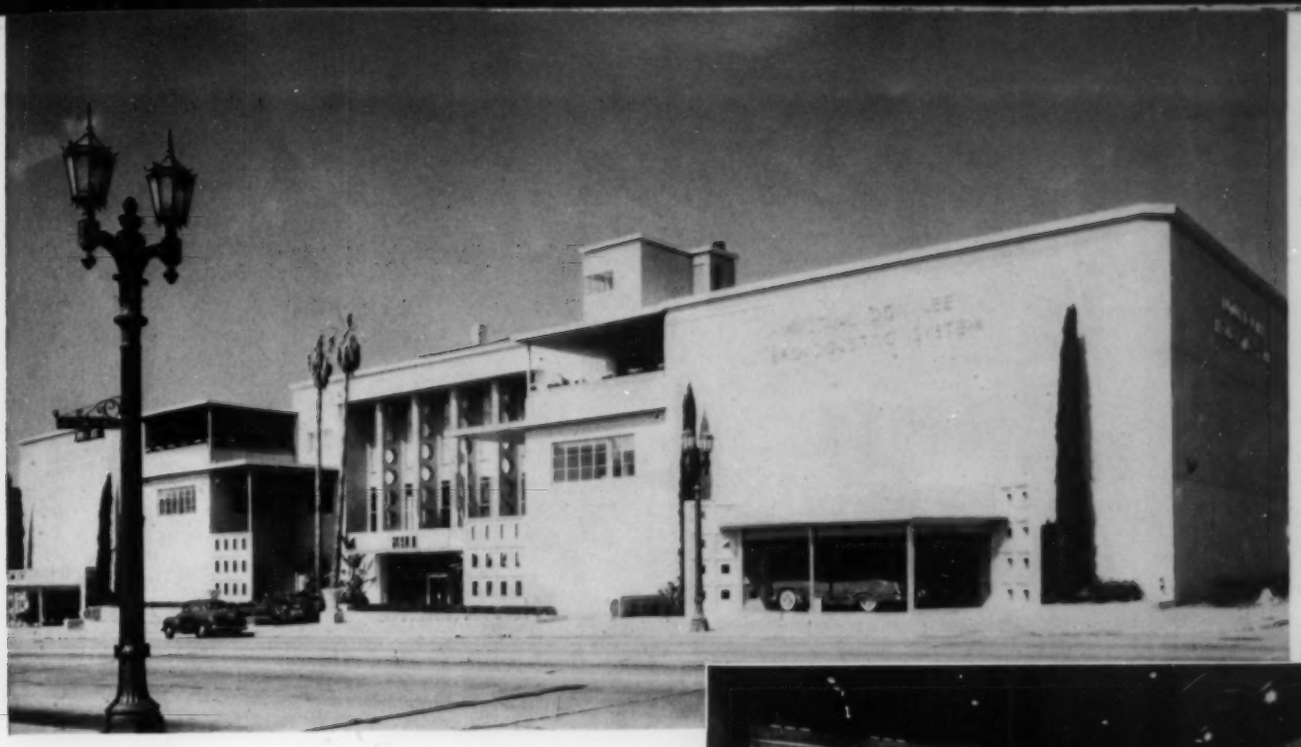
DUMONT NETWORK AFFILIATE

Nelson and Goldberg, Engineer and Architect



STATION WICU, completed late in April, 1949, is a small, limited-budget, one-studio television plant. Its plan is organized to permit operation with minimum personnel; special provisions for audiences are omitted because most live shows will come from networks. On occasion a few live shows may originate in WICU and others may be televised from local sources. When necessary, the studio can hold about 100 people. Limiting the local live program has made possible omission of some production and talent spaces and reduction of others. Grouping both studios (one for the FM component of the telecast), FM control, film room, announce booth and TV equipment about the TV control room helps reduce operating personnel. Equipment room is designed for double present requirements and transmitter room is located so it can be enlarged readily. Acoustic treatment is kept to a minimum in FM studio, eliminated in TV studio, where portable drapes and scenery are relied upon to deaden sound. Air conditioning has not been installed, though provision is made for future packaged air conditioners; at present recirculating air heating and individual ventilators change the air in non-fenestrated rooms; transmitter room has a power exhaust for heat generated by the equipment. Construction cost approximately $12 per square foot.

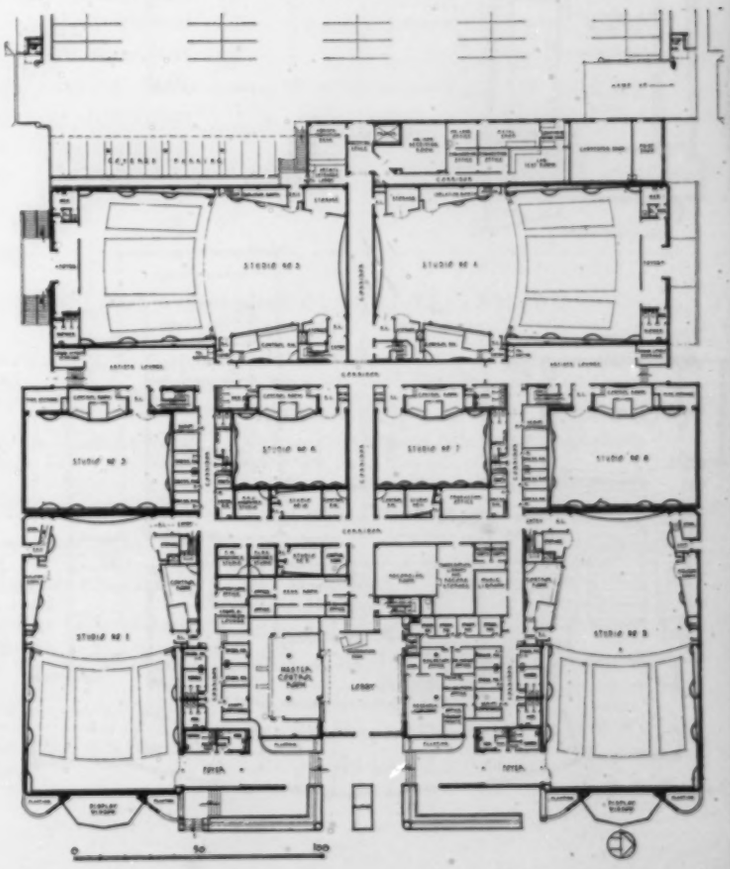
In contrast, the 3-million-dollar Mutual-Don Lee



KHJ *Hollywood, Calif.*
MUTUAL–DON LEE
PRODUCTION CENTER

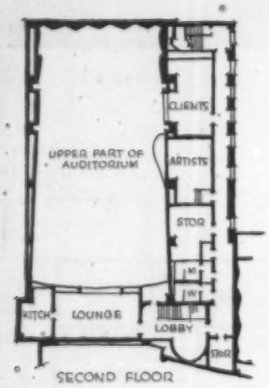
Claude Beelman, Architect; *Herman Spackler, Associate*

building is a two-story, 14-studio radio and TV center where live shows originate. Covering a whole city block, it has ample parking space at the rear (not shown) and is noteworthy for its excellent circulation. Studio audiences may enter any of the theater-studios from the street; talent can proceed directly to dressing rooms and stages; administrative personnel is on second floor, which contains executive, business and sales offices, audition rooms, publicity department, and (on mezzanines) clients' booths and echo rooms for theaters. Each theater is 115 by 65 by 33 ft. high, has a 60 by 65 ft. stage for a 100-piece orchestra, and seats 350 people; all are permanently equipped for TV. There are four theaters, four non-audience studios, three commentator-and-disc-jockey studios, and three announce booths. Master control, set behind a sound-proof window into the main lobby, is 33 ft. long, 10 ft. high, weighs 8½ tons; through more than 800 switching positions a single engineer can handle as many as six programs running simultaneously through the board over 14 outgoing and incoming network lines, as well as circuits from studios, recording studios, cue circuits, video circuits, remote circuits, and house monitors. Basement houses sound-isolated air conditioning apparatus, storage space, employees' lounges, etc. Large studios are all "floated" construction for sound isolation.

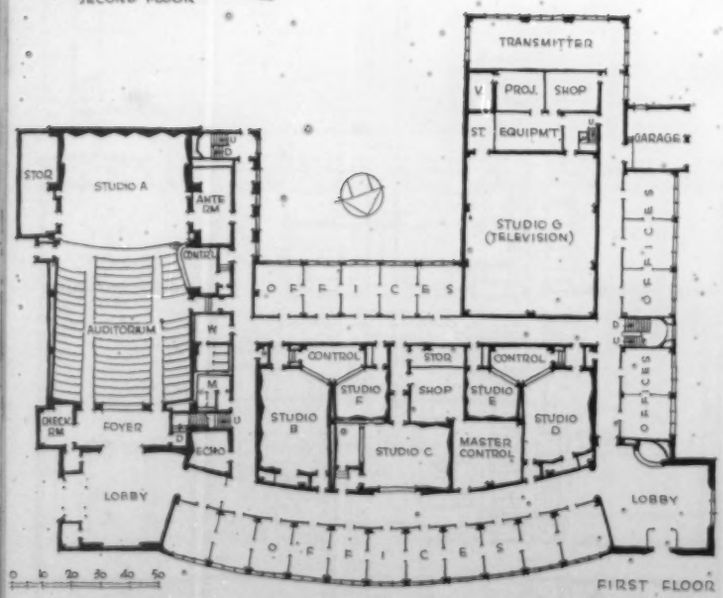


WHAM, THE RADIO CITY OF ROCHESTER, N. Y.

W. G. Kaelber & L. A. Waasdorp, Architects



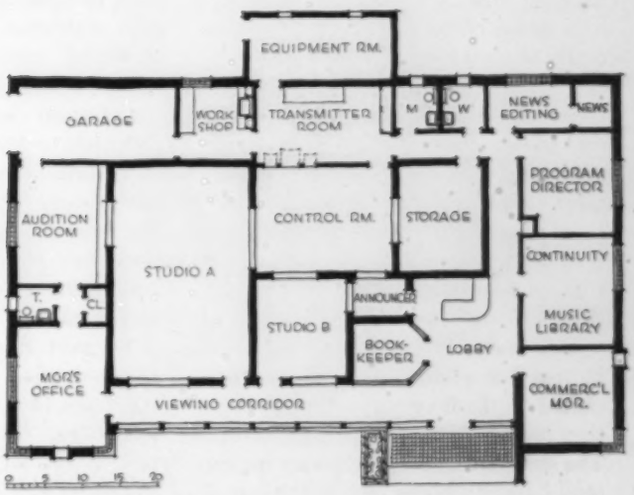
THE recently completed Stromberg-Carlson station, WHAM, provides for AM and FM radio and television. The five smaller radio studios and large auditorium studio are sound-isolated, with floating walls, floors and ceilings inside the reinforced concrete structure. TV studio, approximately 45 by 55 ft., was included in initial design but was completed after the remainder of the building, in time for telecasting to start in late spring, 1949. Access for bringing large props and scenery into the TV studio seems restricted, but some programs may be handled from Studio A. Note economical layout of TV equipment, film studio, vault, shop, transmitter.



Tile and face-brick walls and concrete floor slab are carried by a peripheral grade beam, 12 by 24 in. in size, which rests on footing posts, all of concrete. Roof (built up, on gypsum decking) is framed with 24 in. open-web steel joists; top flanges are extended to carry overhangs; clear span is 45 ft.; interior partitions are non-load-bearing. Beneath floor are chases for radio wiring and air conditioning ducts

KWKC, SMALL FM RADIO STATION IN ABILENE, TEXAS

Hughes & Olds, Architects and Engineers



STATION KWKC, built in 1948, is a radio studio and transmitter building for the Citizens Broadcasting Co. The two studios and announce booth grouped around the control room can be augmented by converting adjacent storage space; like the other studios, this has been constructed with acoustically surfaced walls and ceiling, with mineral wool insulation in the studding. News ticker, though well isolated, is nevertheless convenient in a small station.

CONDENSED BIBLIOGRAPHY: BUILDING FOR TELEVISION

Note: Television has progressed so rapidly that few publications on its building requirements exist, and most of these are outdated. Much information is contained in periodicals; space permits listing only a few articles from such sources. Additional information can be obtained from the editors of the various magazines.

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PRECAST SYSTEM DEVELOPED FOR LOW-COST DORMITORIES

McKim, Mead and White mix precast and poured-in-place concrete to keep costs down

EVERY day there are more and more applications of precast concrete, fostered by high material and labor costs plus the urgency of rapid construction for many types of buildings, especially housing.

A method developed by architects McKim, Mead and White for economy in a group of dormitories that has recently aroused considerable interest uses precast wall slabs as the supporting elements. No columns are required except in large areas such as dining rooms and lounges where the columns supplement load-bearing wall slabs. The only beams are spandrel beams between each floor, and these can be omitted when window frames are cast with the wall slabs.

This construction method is unique in that the precast slabs are not anchored to the floor supporting them — they are merely set on a bed of mortar. The structure is tied together by having steel handling hooks (set in the top of the panels when poured) and the top half inch of the panel cast into and thus made integral with the floor slab above.

Dormitory Studies Made

The new method resulted from intensive studies conducted by the architects in collaboration with E. J. Rappoli, contractor, and Fred N. Severud, structural engineer, for a dormitory project at the University of Vermont.

University officials requested the architects to design accommodations for about 600 students, to be built at a cost not to exceed $850,000, including grading, roads, walks, furniture and professional fees. They also stipulated that the buildings be ready for occupancy within nine months.

To meet this challenge, a complete re-examination was made of accepted standards of college dormitory accommodations, with the result that the precast system was evolved and new standards such as smaller room sizes and the finishing of interiors by painting directly on concrete were considered acceptable.

Very rapid construction and economy resulted from simplicity of design; elimination of many of the conventional construction steps such as plastering, and the work of many trades; use of repetitive shapes of panels; and adoption of the new standards.

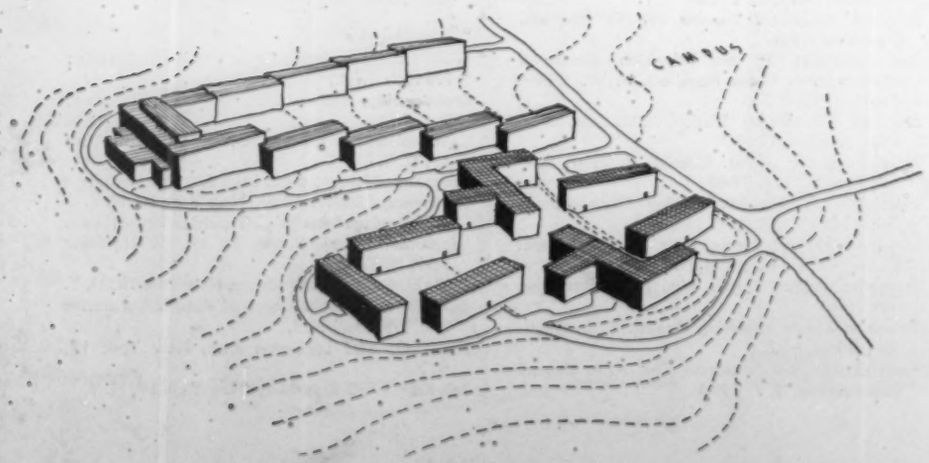
Four buildings were erected at the University of Vermont during 1947, providing for 467 students at a cost of $762,000, including grading, roads and walks. Construction was started at the end of March; two buildings were completed and occupied on Oct. 15 and the remaining two on Nov. 1.

And more recently, the system was adopted at the University of Connecticut. Construction on eight dormitories started in March, 1948; four of the units were completed early in September and the other four before the first of January. These buildings house 1253 students at a cost of approximately $1,880,000, including treatment of grounds, roads and walks, but not furniture and professional fees. Two additional men's and women's groups, each housing 1200 students, are scheduled for completion in February and July, 1950, respectively.

A nurses' home for Mary Fletcher Hospital at Burlington, Vt. was also built by the precast method.

The new standards that developed out of the studies are: (1) story heights are 8 ft. 6 in. (clear height 8 ft. 1½ in.); (2) plastering and associated work are omitted; (3) a room 11 by 14 ft. accommodates two students; (4) wardrobes are usually provided in place of built-in closets; (5) the toilet fixture ratio is reduced to a minimum (found entirely

"Air view" sketch of student housing at Univ. of Connecticut, on which work is completed or under way, being built with precast wall slabs. Buildings at top are completed except for bottom of "U," which is nearly done. Work is just starting on remaining ones



satisfactory to occupants); (6) electrical work is kept to a minimum (each room has two duplex convenience outlets and one lighting outlet).

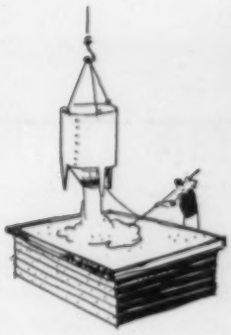
The Construction Technique

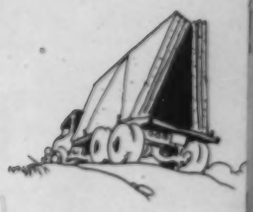
The slabs are cast one atop the other in edge forms, "sandwich" fashion. Footings, foundation walls and all floor and roof slabs are poured in place. The flat floor slabs are continuous and span from exterior to corridor walls. Each floor, then, serves as a platform on which the next tier of precast slabs is set.

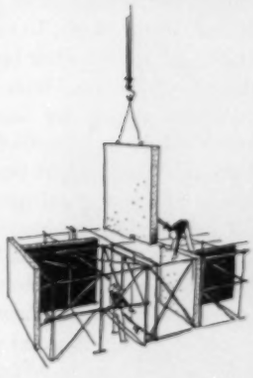
For precasting the slabs, the edge forms are erected on solid, smooth platforms of wood or concrete. Reinforcing steel, and hook bars to facilitate handling, are placed in the form together with any necessary outlets and conduit, and then 2500 psi concrete is poured. The first slab is given a smooth trowelled finish, and after 24 hours is coated with lacquer and then form oil to prevent adhesion of the next slab which is poured on top; sometimes canvas sheets are used as the separating medium. Up to six slabs have been poured in one stack with the sandwich method, but this is not necessarily the limit. Panels have been cast at the site and at points as far as 60 miles from the site.

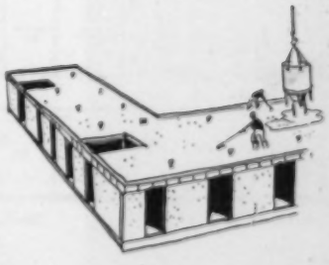
After a curing period of seven days, the panels are set in place by crawler cranes. Two different means of support have been used to hold the panels until they are finally anchored in place. At the University of Vermont simple wood bracing was used, and then forms were put over the panels for the cast-in-place concrete floors. At the University of Connecticut, the supports for the floor forms were erected first. Slabs of the outer wall were set against the supports, and slots were left for partition slabs.

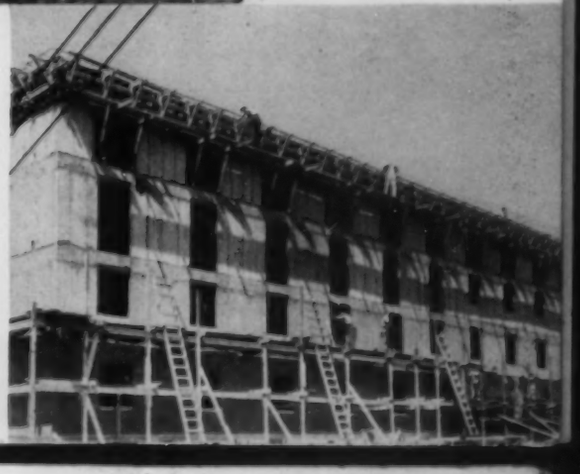
The precast exterior walls are faced with a 4-in. wall of brick, set 2 in. away from the panels to form a cavity wall. Outer wall panels have galvanized iron channels cast into them to hold the keys which tie the brick shell to the panels. Exterior wall panels, as used in the Vermont and Connecticut dormitories, are 8 in. thick except under window openings. Here a 4-in. spandrel panel is used, set even with the outside face of the wall slab, creating a recess for tucking away convectors and steam risers. Beams above the windows have sleeves cast in them to allow the pipes to go up through. Basement walls consist of 8-in. slabs, facing the interior, separated by a 2-in. cavity from an outer, sand-cast, 5-in. slab. Brick replaces the 5-in. exterior slab above the basement.



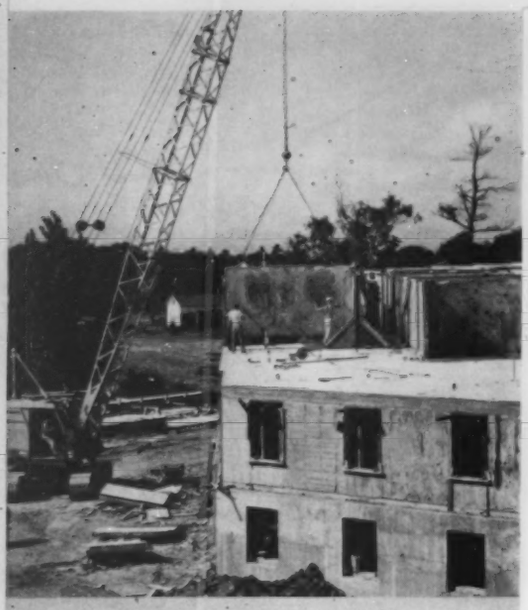




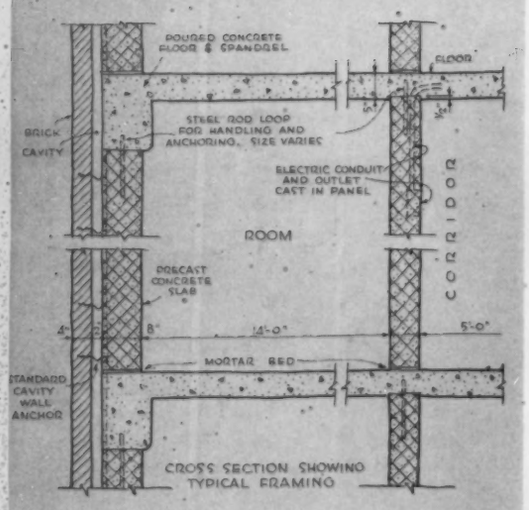


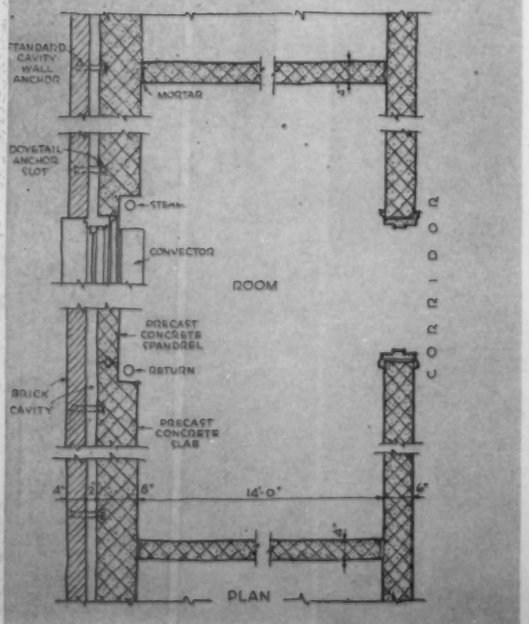


Sketches by Walker Cain



Photo, left: setting up precast wall slabs at the Univ. of Vermont. Simple wood bracing held slabs in place; floors were poured in place in forms built over slabs. Details below photo show typical dormitory construction. Bottom right: some of the first dorms built at the Univ. of Connecticut





Concrete panels used for partitions between the rooms have a notch cast in at the bottom. At this point the electric conduit, which is cast into the floor slab, rises up to permit attachment of double convenience outlets.

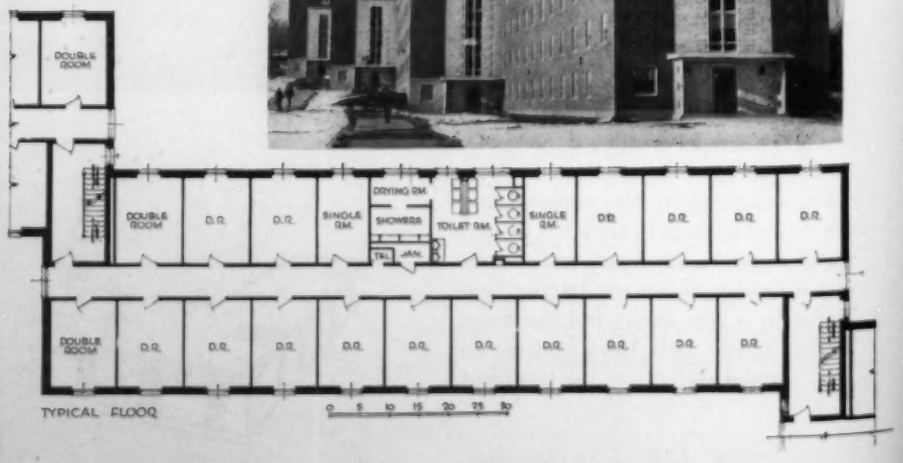
All interior joints are grouted, and excess mortar is rubbed down. After removal of the floor slab forms, fins and rough spots are ground if necessary and finished as smoothly as possible, except where acoustical tile is applied, when fins projecting not over $\frac{1}{8}$ in. are permissible. The interiors besides having the equivalent of plastered room finish have the additional advantage of practically indestructible surfaces. In toilets, kitchens and in some cases stair halls, a glazed brick-tile finish has been used over the concrete panels for sanitary reasons and to reduce maintenance.

On first thought there might be some question about the acoustical qualities of this construction. The architects have found that in bedrooms, the usual furniture and hangings are adequate to create satisfactory acoustical conditions. In corridors, ceilings are treated with acoustical tile, and in later buildings this treatment is being extended to other spaces. Transmission of sound through walls and floors has not been found to create a serious problem, and the concrete walls are not colder than ordinary plastered walls. The concrete floors are finished with asphalt tile.

Besides the fast construction possible, the "edge slab method," as it is called, provides permanent, fireproof housing at exceptionally low cost.

BUILDING COSTS WITH PRECAST CONSTRUCTION

Cost per cu. ft.	No. of Persons Accommodated	Cost per Person
$0.83	**567**	**$1,344**
Univ. of Vermont Dormitories (Minimum amount of lounge space, no dining facilities)		
1.014	**1,560**	**1,662**
Univ. of Connecticut Dormitories (Includes dining hall, lounges and kitchen)		
0.97	**180**	**1,860**
Nurses Home at Mary Fletcher Hospital, Burlington, Vt. (Includes library, 3 class rooms, large recreation room; no dining facilities)		



GLARE-FREE LIGHTING METHODS STUDIED BY M.I.T.

By H. L. Beckwith, C. M. F. Peterson and Parry Moon

Lighting methods, equipment and concepts are changing rapidly these days in an effort to achieve high levels of illumination without glare. A committee was formed at M.I.T. in 1946 to evaluate modern lighting trends especially with respect to schools, and during their studies both luminaire and luminous ceiling types of lighting were installed and tested. The RECORD reports here their findings.

To provide a satisfactory luminous environment for people who are doing close visual work, we need:

(a) Enough light

(b) Glare-free light (requires a 3-to-1 brightness ratio).

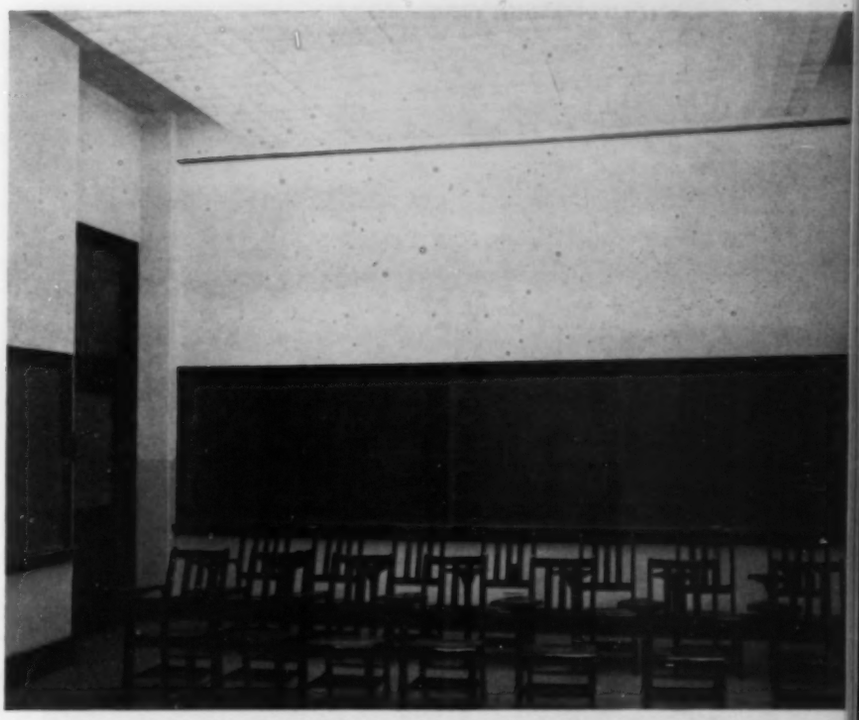
BANISHING GLARE, SHADOWS

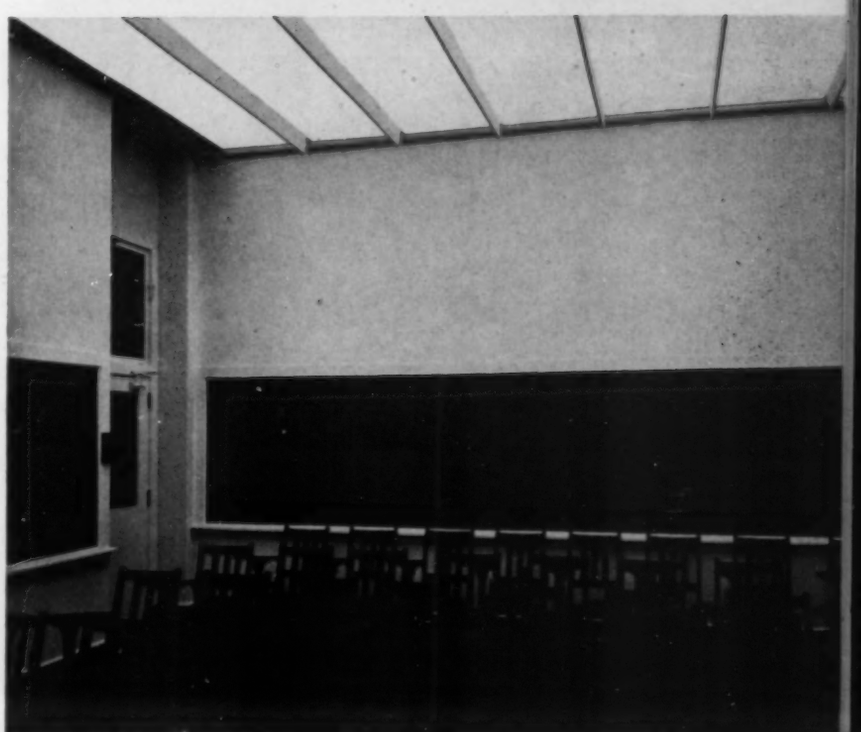
The first requirement is obvious and needs no comment. The second deals with the fact that excessive contrasts in the visual field must be absent if eyestrain is to be eliminated. It is now generally realized that both glare and troublesome shadows are banished and a pleasing psychological effect is produced if the brightness of the brightest surface in the room does not exceed 3 times that of the work, and if the brightness of the work does not exceed 3 times that of the darkest surface in the room. This single criterion, as recommended by the Illuminating Engineering Society, provides the simplest rule for obtaining excellent quality in lighting.

As indicated in Table I, a 3:1 brightness ratio cannot be obtained when bare lamps are employed. It has been found that a 3:1 ratio requires a light source of very large area, which is obtained most effectively by using the entire ceiling. Evidently either a *reflecting* ceiling or a *transmitting* ceiling may be used for high-quality lighting. In the former, the ceiling is painted white and light is thrown onto it from below. In the latter, a hung ceiling of translucent plastic is interposed between the lamps and the room.

LIGHTING BY REFLECTION

Perhaps the simplest way of obtaining a luminous ceiling by reflection is to use hanging luminaires that direct most of their light toward the ceiling. The parts of the luminaire that are visible from below should be made of a dense translucent material whose brightness is not widely different from the ceiling brightness. Several luminaires of this type are





In studies evaluating modern lighting trends M.I.T. installed a louverall system (top) in one classroom and a ceiling of light diffusing plastic in another (bottom). Strips hanging below the plastic are for acoustic treatment. In new classrooms, lighter colored furniture, chalkboards would normally be used

TABLE I

Approximate Average Brightness of Some Fluorescent and Incandescent Lamps

Lamp	Brightness (Blondel)*	Brightness Ratio**
40-watt, T-17, 4500° white fluorescent	9,900	24.7
40-watt, T-12, 4500° " "	17,300	43.3
96-inch, T-8 at 200 ma	17,700	44.2
at 300 ma	23,200	58.0
32-watt circular fluorescent	22,000	55.0
60-watt A-19 incandescent	70,000	175
100-watt A-21 "	120,000	300
200-watt PS-30 "	130,000	325
500-watt PS-40 "	200,000	500

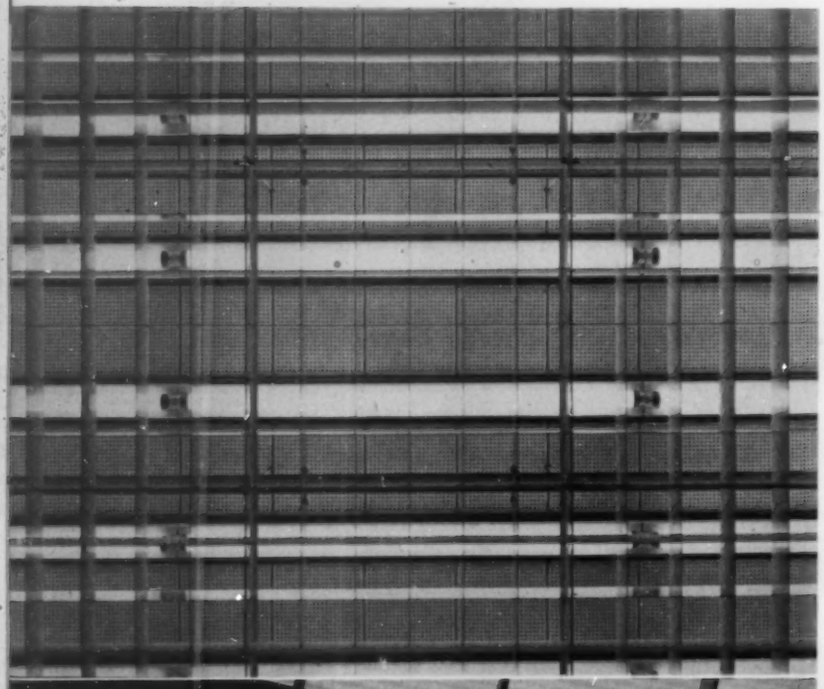
*1 blondel = 0.1 millilambert.
**For illumination of 46.5 lumen per sq. ft. on white paper having a reflectance of 0.80.

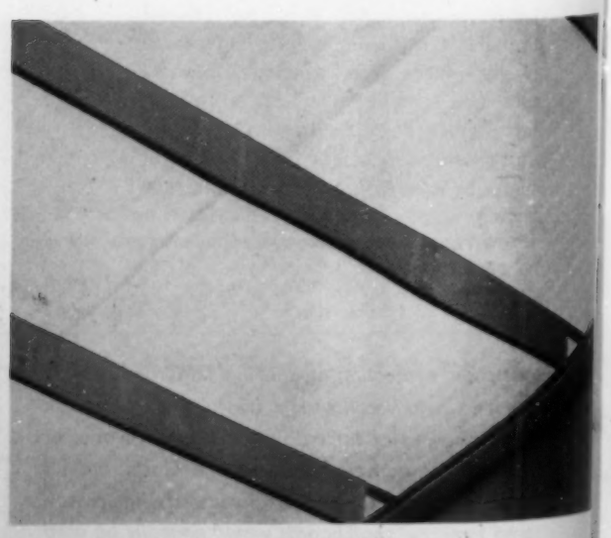
now commercially available. An experimental luminaire, designed by the lighting committee, is shown in the photo at top of page 147. When used with highly reflecting room surfaces (ceiling at least 80 per cent, walls at least 50 per cent, floor and furniture at least 30 per cent) such luminaires satisfy the 3:1 criterion and provide an ideal luminous environment.

TRANSMITTING CEILING

Another method of obtaining excellent visual conditions as studied by the lighting committee uses a hung ceiling of diffusing plastic. The bottom photo on page 145 shows a typical classroom lighted in this way. Forty-four 72-in. T-8 fluorescent lamps, spaced 24 inches apart, are mounted directly on the structural ceiling. The total load is 2200 watts or 3.26 watts per sq. ft. The average illumination at table level is approximately 60 lumens per sq. ft.

Approximately 18 in. below the true ceiling are perforated steel strips 6 in. deep, containing glass fiber absorbing pads which provide the acoustic treatment for the room. Without treatment, the reverberation time of the classroom was approximately 4 seconds, but this value was reduced to slightly more than





Top left: looking up at the louverall ceiling; fluorescent lamps are shown attached to acoustic tile. Bottom left: looking up at ceiling of light diffusing plastic; sheets can be pushed back for maintenance. Right: closeup of the perforated strips which provide acoustic control

1 second by the acoustic strips. Credit is due the M.I.T. Acoustics Laboratory which collaborated with the lighting committee on the acoustic design.

Above the acoustic strips are sheets of 1/8 in. light-diffusing plastic approximately 36 by 48 in. The sheets are corrugated for greater stiffness. They are easily moved to allow access to the lamps, as shown on opposite page.

As would be expected for a pioneer installation, the cost of lighting the room was rather high. Table II shows the total cost of lamps, ballasts, and wiring (done by local contractor).

How can these costs be reduced in future installations? With larger rooms, or several rooms installed at the same time, the labor cost per lamp would be lowered somewhat. Also, if the user is satisfied with less light, the number of lamps can be reduced proportionately.

The most promising item of economy, however, is the use of thinner sheets of the diffusing plastic which can be obtained for 60 cents per sq. ft. Or plastic-impregnated paper, costing about one cent per sq. ft. can be stretched on metal frames and can be easily renewed if it becomes damaged. It would seem that careful design might allow the transmitting luminous ceiling to be produced at a cost no greater than that of other high-quality lighting systems.

Because of the recent use of the louvered ceiling in a number of lighting installations, a direct comparison between it and the uniform luminous ceiling seemed advisable. Therefore, a louverall ceiling was installed in a classroom adjacent to that with the plastic ceiling. Lighting was provided by 36, 40-watt T-17 "low-brightness" fluorescent lamps mounted on the ceiling. White enameled steel louvers with 45° cutoff were hung below the lamps. The total load was 1950 watts (2.88 watt per sq. ft.), and the average illumination at desk level was approximately the same as for the luminous plastic ceiling.

Though direct glare is usually cut out by the louvers, they have no effect on reflected glare which may be a very potent source of eyestrain. The photos at bottom this page show examples of reflected glare, experienced in the louverall room but absent with the luminous plane ceiling.

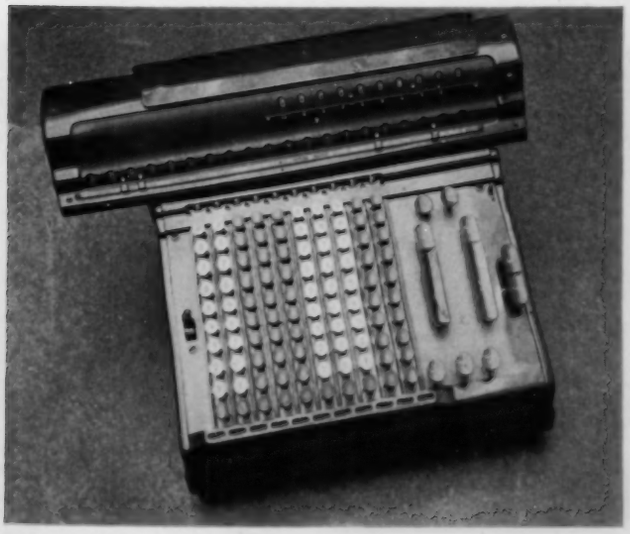
The great defect of most lighting installations has been excessive brightness variation. The luminaires have been too bright, the floors and furniture have been too dark. The modern trend is toward the use of lighter colors throughout the room, combined with large light-sources of low brightness. In this way, a 3:1 brightness ratio can be obtained, resulting in an ideal luminous environment.

Room using luminaires (upper left) designed by M.I.T. lighting committee. Each luminaire consists of two half cylinders, the upper one transparent plastic and the lower, diffusing plastic. The luminaires are of dust-tight construction, and no metal bars or other opaque parts are used on the sides

TABLE II
Cost of Installing an Experimental Luminous Ceiling

	Total Cost	Cost per sq. ft.
Lamps, ballasts, and wiring	$1125	$1.67
Acoustic beams, fabricated and installed	597	0.89
Diffusing plastic	968	1.43
Total	$2690	$3.99

Demonstration of specular reflections from bare fluorescent lamps. Photos were taken in classroom with louvered ceiling



PRODUCTS for Better Building

CURTAIN WALL CONSTRUCTION

Curtain wall panels consisting of cellular glass insulation cores and concrete veneers are reported to lower costs, reduce construction time, provide lightweight construction, make more floor space available, and give permanent insulation. They have been fabricated in several practical sizes and thicknesses for use in basic curtain wall systems — spandrel (horizontal), vertical and bay filling — in single or multi-story construction.

The largest panels made to date measure 256 sq. ft. The popular thickness is 6 in. — 2-in. cellular glass core with 2-in. exterior and interior veneers.

The core is *PC Foamglas*, an inorganic, closed-celled, rigid cellular glass insulation, said to be completely impervious to water and vapor, thus stopping moisture vapor migration from one side of the panel wall to the other. There are said to be no "cold spots" in the walls.

Concrete veneers, processed by heavy mechanical troweling, steam curing, and/or vacuum processing, are said to have good weathering characteristics. Exterior and interior faces of the insulated concrete panel require no additional finish, unless desired.

Glass block fenestration has been cast in while panels are being fabricated horizontally in edge forms. A 24-hr. casting-to-lifting schedule has been reported used successfully. Panels can be made on the site or fabricated some distance away and shipped by rail or truck.

The insulated concrete panel wall is described as being adaptable to any design, regardless of floor plan, window arrangement, or structural skeleton.

The 6-in. thick panel weighs from 40 to 60 lb. per sq. ft., depending on the aggregate used. Thinness of the panels increases usable floor area about 72 in. for each running foot of floor perimeter, according to the manufacturer. Final installed cost for jobs to date is reported to be under $2.00 per sq. ft. of exterior surface. Pittsburgh Corning Corp., 307 Fourth Ave., Pittsburgh, Pa.

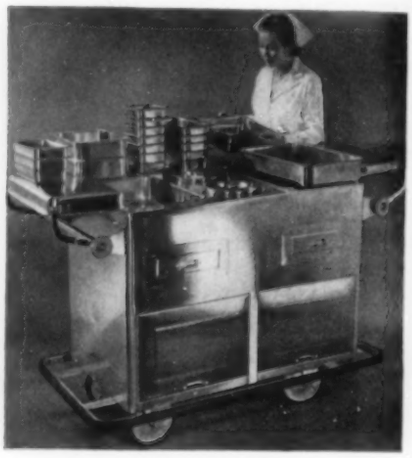
HOSPITAL FOOD CONVEYOR

The development of a new *Selective Menu Food Conveyor* for hospitals is reported to be a real aid for diet therapy programs.

The conveyor has a flexible top deck arrangement which utilizes interchangeable square and rectangular utensils instead of only regular round-well utensils. Eighteen utensils in six sizes come with each conveyor, permitting a great number of top-deck arrangements. There are two round wells for liquid food.

To speed the distribution of food, there is a long side shelf with room for two complete trays. Two heated drawers provide for special diets and rolls.

The top deck is of one-piece, crevice-free construction, the wells being an integral part of the top, making it much easier to clean. The body is also of one-piece, seamless construction. The conveyors are built from heavy-gauge stainless steel. S. Blickman, Inc. 534 Gregory Ave., Weehawken, N. J.



Hospital food conveyor, made of seamless stainless steel, has flexible top deck

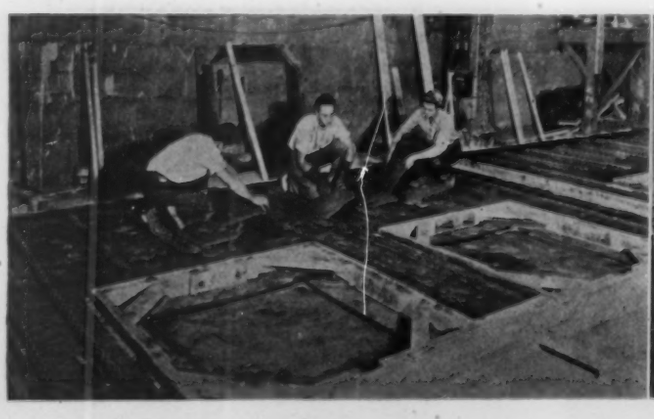
SIX BOILERS IN ONE HOUSE

Probably one of the largest and most unique residential heating systems installed in recent years is in use in the Harry L. Magee residence, Bloomsburg, Pa. No less than six *H. B. Smith* boilers are used to provide space heating and domestic hot water. Two boilers furnish hot water for the radiant system of the main house, two warm swimming pool water and the other two provide domestic hot water to the house and garage.

Radiant heating is provided by copper tubes imbedded in the ceiling plaster. And in conjunction with this system there are a winter humidifying and air circulation system and a summer air conditioning used in the main house.

(*Continued on page 184*)

Lightweight, insulated panels made with a core of cellular glass covered by concrete veneers. Left photo shows core being inserted



CABINETWORK DETAILS

See also May 1949 issue (pages 147, 153, 155)

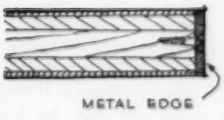
Based on information from Nuroco Woodwork, New Rochelle, N. Y.

(*Continued from page 151*)

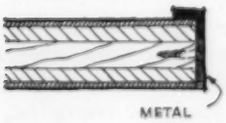
PLYWOOD EDGE TRIMMING

MOST COMMON SOLUTION - REQUIRES EXPENSIVE CUTTING, GLUING. CORNERS ARE WEAK. GOOD WHEN ALL SIDES ARE EXPOSED.

PROVIDES STRONG EDGE FOR HINGES, ABRASIVE WEAR, OR MOLDED WORK. INTRODUCES DIFFERENT WOOD GRAIN AND TEXTURE.



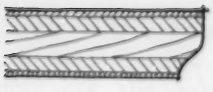
PROVIDES STRONG, WEAR-RESISTANT EDGE FOR WORK TOPS AND TABLES. TYPE SHOWN IS FLEXIBLE - CAN BE BENT TO FOLLOW MOST CURVES. FOR GOOD SEAL STRIP, SHOULD BE CEMENTED AND SCREWED TO THE TOP. USED MOSTLY FOR SERVICE TOPS.



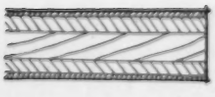
TOP LIP HOLDS DOWN TOP VENEER-MAKES STRONGER, MORE DURABLE EDGE. WILL NOT BEND READILY.

UNTRIMMED EDGES

THIS CORNER TENDS TO BE WEAK. RECEDING EDGE HELPS CONCEAL EXPOSED EDGES OF PLIES.



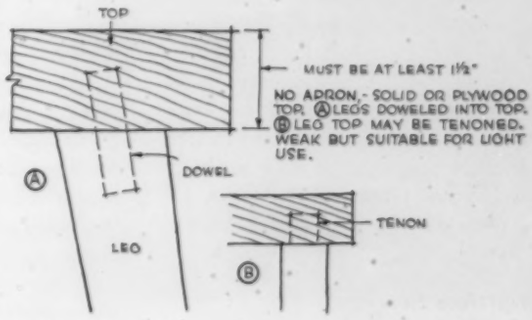
STRONGER AT TOP. CURVED EDGE HELPS CONCEAL EDGES OF PLIES.

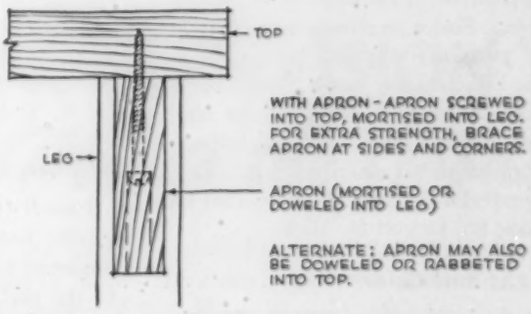


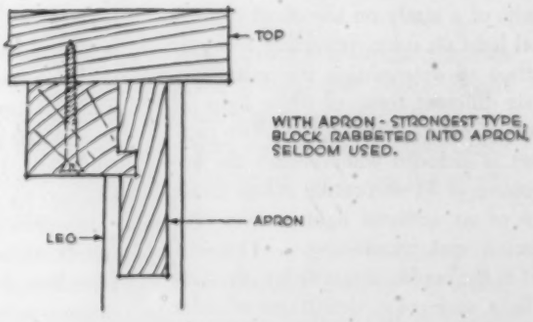
IF SURFACE IS TO BE PAINTED NO EDGE FINISH IS NECESSARY.

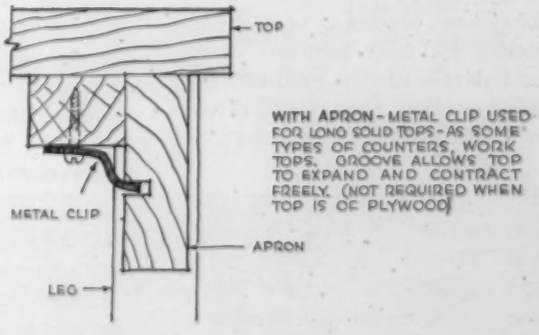
TABLE LEGS, APRONS

METHODS OF ATTACHING TOPS TO LEGS


TOP
MUST BE AT LEAST 1½"
NO APRON - SOLID OR PLYWOOD TOP. Ⓐ LEGS DOWELED INTO TOP. Ⓑ LEG TOP MAY BE TENONED. WEAK BUT SUITABLE FOR LIGHT USE.
DOWEL
Ⓐ
LEG
TENON
Ⓑ


TOP
LEG
WITH APRON - APRON SCREWED INTO TOP, MORTISED INTO LEG. FOR EXTRA STRENGTH, BRACE APRON AT SIDES AND CORNERS.
APRON (MORTISED OR DOWELED INTO LEG)
ALTERNATE: APRON MAY ALSO BE DOWELED OR RABBETED INTO TOP.




TOP
WITH APRON - METAL CLIP USED FOR LONG SOLID TOPS - AS SOME TYPES OF COUNTERS, WORK TOPS. GROOVE ALLOWS TOP TO EXPAND AND CONTRACT FREELY. (NOT REQUIRED WHEN TOP IS OF PLYWOOD)
METAL CLIP
APRON
LEG

MANUFACTURERS' LITERATURE

Glass Insulation

PC Foamglas For Home Insulation. Covers uses of cellular glass insulation for floors, masonry walls, roofs, and in snow melting systems for sidewalks and driveways. Introduction points up special qualities of the insulation which is said to resist passage of moisture or moisture vapor, and to be non-combustible, rot-proof, warp-proof. Specifications are given for insulation of: ground and foundation walls; masonry walls (including application procedures, materials and finishes); roofs (including application procedures); snow melting coils. Physical properties are listed. 12 pp., illus. Pittsburgh Corning Corp., 307 Fourth Ave., Pittsburgh 22, Pa.*

Detention Screens

Detention, Protection and Safety Screens. Folder on screens for detention and protection applications in psychiatric hospitals or wards, and safety screens to provide protection for children or elderly cases. Exclusive features are pictured and described. 4 pp., illus. Chamberlin Detention Screens, 1254 La Brosse St., Detroit 26, Mich.

Light and Color

Color is How You Light It. Presents results of a study on the effect of artificial light on color, providing a simple method of determining the suitability of six different tones of white light on colors of paints and fabrics. A two page chart is included which shows the appearance of 44 decorating colors under each of six artificial light sources (fluorescent and incandescent). The first part of the booklet deals with the nature of light and color, definitions of color and light terms, the science of seeing, color systems, psychology of color, color matching and color harmony. 14 pp., illus. Sylvania Electric Products, Inc., Commercial Engr. Dept., 500 Fifth Ave., New York, N. Y.*

Wood

Finishing Northern Hard Maple Flooring the MFMA Way. Folder on the prime requirements for good service finishing and proper maintenance of northern hard maple, beech and birch flooring. Includes information on the sanding procedure for a smooth floor, tips on the application of finishes, and suggestions for surface cleaning. Maple Flooring Manufacturers Assn., Oshkosh 9, Wis.*

Use of Gas in the Home

The Reference Manual of Modern Gas Service. Comprehensive manual on installation practices, specifications, appliances and sizing of gas equipment. It provides answers to questions on kitchen planning, gas cooking, gas refrigeration, basements and utility rooms, the modern home laundry, piping, and chimneys, flues, vents. Standardized data sheets are provided on the newest gas appliances. The manual has a loose-leaf binding so that supplementary material can be added. 250 pp. plus manufacturers' data sheets. American Gas Assn., 420 Lexington Ave., New York 17, N. Y. *$7.50.*

Kitchen Equipment

Plan-It (Cabinet Storage Issue). The current issue of the Plan-It bulletin, published by Hotpoint, Inc., is devoted to the problem of how much cabinet space is needed for kitchens based on findings of the Small Homes Council and Agricultural Experiment Station of the University of Illinois. Ample and minimum space requirements for liberal and limited kitchen supplies are reported. Hotpoint, Inc., 5600 W. Taylor St., Chicago 44, Ill.*

Blueprint for Better Kitchens. Gives specifications and dimensions of a complete line of base and wall cabinets and cabinet sinks. Typical kitchen installations are illustrated in color. Special features of the cabinet sinks, including an electric garbage disposer, are described. 12 pp., illus. Mullins Mfg. Co., Warren, Ohio.*

Intercommunicating Systems

Intercommunicating Telephone Systems (Bulletin No. 155). Describes function, operation, capacity, styles of instruments, equipment required, and wiring and power supply for a variety of intercommunicating telephone systems. Wiring diagrams are included. 20 pp., illus. Auth Electric Co., Inc., 34-20 45th St., Long Island City 1, N. Y.

Lightweight Aggregate

Permalite, The New Insulating Plaster Aggregate. Technical data, specifications, instructions for use, and other allied information on a lightweight plaster aggregate material made from perlite, a volcanic rock. Discusses manufacturing methods, ore deposits and production facilities. The material is now being processed in Torrance, California, and will soon be available from Linden, N. J. 6 pp., illus. Great Lakes Carbon Corp., Building Products Division, 18 E. 48th St., New York 17, N. Y.

Lighting

It Happened in Denver's Schools — It Can Happen in Yours. Report on how new lighting systems were installed in 80 Denver public school buildings. Tells how the project was planned, who helped with lighting layouts, how classrooms were redecorated, how fixtures were selected. 16 pp., illus. Day-Brite Lighting, Inc., School Lighting Division, 5450 Bulwer Ave., St. Louis 7, Mo.*

Access Panels

Access Panels by Watson. Shows how access panels can be installed quickly in metal lath, wood lath, marble, tile and plastered openings. The standard size panels are designed to provide instant, convenient access to control points vital in the maintenance of plumbing, heating and ventilating, air conditioning and refrigeration systems. Installation drawings and a list of standard sizes are included. 4 pp., illus. Watson Mfg. Co., Inc., Jamestown 1, N. Y.*

Plant Maintenance

The Tornado Method. Covers many problems of plant and institution floor care and maintenance. Describes equipment necessary, steps to be followed with both old and new floors, and includes a stain removal chart. Specific instructions are given for all types of floors. Describes necessary equipment and accessories. 34 pp., illus. Breuer Electric Mfg. Co., 5100 Ravenswood Ave., Chicago 40, Ill.

Glazing Hints

Facts About Glazing. Brings out important points in applying glazing compounds to wood or metal sash. Takes

(*Continued on page 206*)

* Other product information in Sweet's File, 1949.

IT'S SAFETY-SET FOR SELLEVISION

and Sellevision Moves the Goods

ABOVE ▲ *Borg Flower & Gift Shop, Chicago. Thermopane installed in Brasco Anodized Aluminum Settings.*

Architect:
Glenn Q. Johnson
Park Ridge, Illinois

SALES INSIGHT marks the keen merchandiser and *Sellevision** literally means more sales in-sight. The store front that has it holds old customers and attracts new ones. It's *selling power* brought to the front and built right into it.

Sellevision is particularly effective when complete Brasco metal settings are utilized. Our widely adaptable Safety-Set Store Front Construction provides metal sections substantially reduced in size to reveal the largest possible unobstructed glass surfaces. At the same time we maintain the deeper, safer, more uniform grip on the glass which has always typified Brasco sash.

Our details show how this is accomplished and also indicate the use of millwork in standard stock sizes only, making Safety-Set most economical to install. Here is sound, practical, handsome construction . . . painstakingly fabricated in both heavy gauge stainless steel and anodized aluminum. Catalog and comprehensive full size details mailed promptly on request. *©

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BRASCO MANUFACTURING CO.
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Specialists in Metal Store Front Construction for more than 35 Years

You can *feel* the difference

When you choose these *Wood Windows*

Feeling is believing . . . and that's a major reason why Ponderosa Pine windows are so widely preferred. For these windows *feel* more comfortable . . . they have the warmth of wood, a natural insulating material. In addition, because wood does not readily transmit cold, it does not encourage condensation—a frequent cause of redecorating problems.

Ponderosa Pine is a high quality wood—yet Ponderosa Pine woodwork is moderate in cost. Even grained, smooth in texture and low in density, it takes paint or other finishes without "grain raising" and holds them lastingly. In accordance with high industry standards, Ponderosa Pine windows are available toxic preservative treated at the factory—an additional safeguard against moisture, decay or insect attack. And Ponderosa Pine windows and doors offer you a wide scope of choice, because they are made in many styles to fit any style of architecture.

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NEWS FROM CANADA

(*Continued from page 10*)

Labor Productivity Still Low

One out of every 13 non-farm workers in 1948 was employed in the construction industry, Central Mortgage & Housing Corporation reports in the current issue of "Housing in Canada," a quarterly summary of major trends in the housing field. On the whole, construction employment averaged about 289,000 during the year, an increase of 37,000 over 1947, itself a peak employment year.

Although 1948 saw some improvement, "Housing in Canada" states that the present man-hour output of building labor is lower than in 1939. This it attributed to a thinning in the labor ranks of skilled construction workers and the delays and uncertainties of material deliveries owing to certain shortages. While the combined index of residential material prices and construction labor wage rates was 97 per cent higher in 1948 than 1939, it is reported that actual on-site costs were 108 to 118 per cent higher.

Advice From Senior Architect

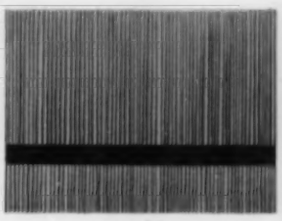
Opportunities for architects are many, says A. S. Mathers, F.R.A.I.C., R.C.A., writing in the Financial Post. The article is one of a series designed to help young Canadians decide the all-important question of their future.

Mr. Mathers, a partner in the well-known Toronto firm of Mathers & Haldenby, expresses the opinion that "Mentally a successful architect should be alert and imaginative. He should be observant and possess a pleasing personality and be able to get along well with all sorts of people."

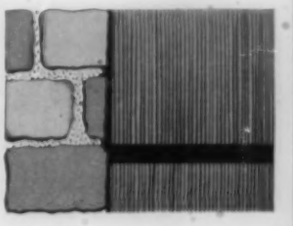
Mr. Mathers thinks that the best training for an architect is a combination of formal academic study and practical experience on construction work, both in an architect's office and in the field. Equally essential is familiarity with the administrative end of architectural practice. Postgraduate work, to his mind, is not nearly so important as travel. He warns the young architect not to marry too early. "Many brilliant young men," he says, "have denied themselves the possibility of later success by assuming the financial burden and restrictions on travel imposed by marriage before their earning power was sufficient.

(*Continued on page 158*)

Customers have a choice of smooth-surfaced stained shingles with visible joints or

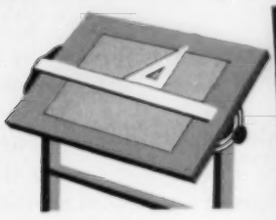


Grooved surfaced shakes which have invisible joints and resemble handsplits.



They are excellent for use with other building materials.

Application is easy as ABC. Shiplap nailing guide is the only "extra" tool needed.

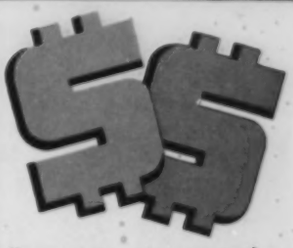


Easy to specify, the complete specification range is covered in Sweet's 8b/7a.

14 reasons why Architects specify STAINED SHINGLES and SHAKES

Beauty and versatile application to design are primary reasons for the growing trend to stained shingles and shakes for residence walls. Whether the design calls for shingles or shakes—you have the freedom to specify exposures as narrow as 8", as wide as 16", or any appropriate exposure between these extremes. Full specifications and recommendations are included in Sweet's Architectural File 8b/7a.

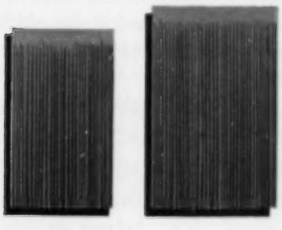
Note the other advantages illustrated on this page, particularly the ease of application, good nation-wide distribution and plentiful supply. Manufacturers listed below will send sample shingle and shake products to interested architects on request.



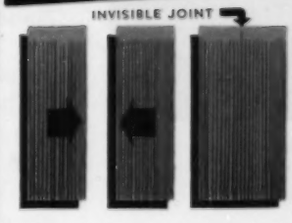
Homeowners get greater value, dollar for dollar, with stained shingle and shake sidewalls.

Carton packages make stained shingles and shakes easy to store, clean to handle, easy to deliver.

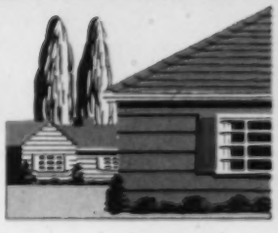
Distribution is convenient to dealers everywhere. Write to manufacturers listed below.



16" and 18" lengths provide wide choice of weather exposures to make project homes look different.



Edges of shakes are true parallel. Joints are tight and blend with the grooved texture.



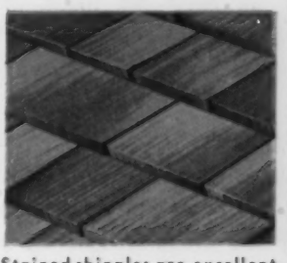
Every shingle and shake home is an advertisement. One home will lead to the sale of another.

Architects approve and recommend cedar shingles and shakes. Sweet's file has 8 pages of data.

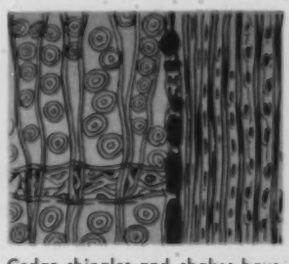
STAINED SHINGLE & SHAKE ASSOCIATION

ASSURANCE OF QUALITY

Rigid grading requirements for the manufacture of stained shingles and shakes have been established by the Stained Shingle and Shake Association. Precision re-butting and jointing, proper drying and packing, minimum widths, and guaranteed coverage per square are maintained by the members of the Association. Address inquiries to the Association at 835 Central Building, Seattle 4, Washington, or write direct to any member listed below.



Stained shingles are excellent material for roofs as well as for sidewalls. A real roof value.



Cedar shingles and shakes have millions of microscopic insulating cells to resist heat transmission.

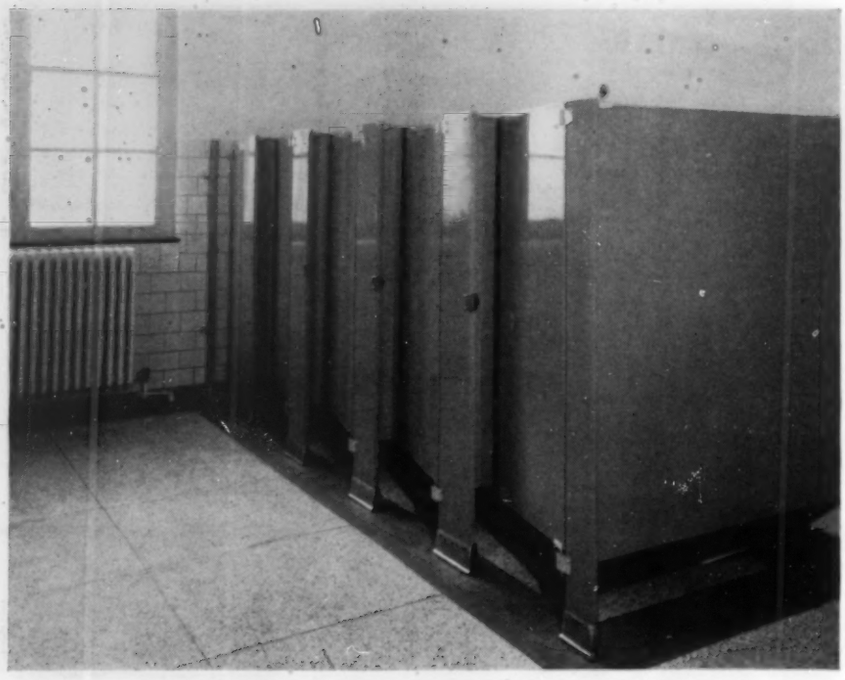
ASSOCIATED MANUFACTURERS

• Creo-Dipt Company, Inc., North Tonawanda, New York • Everett Shingle & Shake Company, Everett, Washington • Capilano Timber Company, Ltd., Vancouver, British Columbia • Perma-Products Company, Cleveland, Ohio • West Coast Stained Shingle Co., Seattle, Washington • Portland Shingle Company, Portland, Oregon • Wood Beautifiers, Seattle, Washington • Colonial Cedar Co., Inc., Seattle, Washington • M. R. Smith Lumber & Shingle Co., Seattle, Washington • Canadian Forest Products, Ltd., Vancouver, British Columbia • The Robert McNair Shingle Co., Ltd., Vancouver, British Columbia

WEISART

Flush Compartments

in any desired color for finest buildings



WeisArt installation in Thomas Howe High School, Indianapolis, Ind. McGuire and Shook, Indianapolis, architects.

WeisArt Flush Compartments provide the triple protection of galvanized, bonderized steel and modern synthetic gum enamels—materials which have proved most adaptable and desirable for toilet partitions in modern building practice. They are available in any color you wish, to match or harmonize with any color scheme.

Notice the clean-lined appearance of a WeisArt installation. Rigid flush stile construction eliminates post and head rail. Exclusive Weis gravity cut out type top hinges permit doors and stiles to line up at top. The sparkling finish not only enhances appearance—it is both durable and easy to keep spotlessly clean and sanitary. For assured satisfaction in the finest class of construction specify WeisArt Flush Compartments. Write now for information and specification details.

HENRY WEIS MFG. CO., INC., 603 WEISWAY BLDG., ELKHART, IND.

NEWS FROM CANADA

(*Continued from page 156*)

"The field is not overcrowded," Mr. Mathers continues. "There are many openings for the young architect who is prepared to establish himself in smaller cities. It is fairly difficult to get established in large cities where competition with recognized architects must be met." Pointing out the danger of becoming too involved with outside activities, he concludes "Attention to business is the main thing if clients are to be satisfied."

Corporation Makes Annual Report

Lending operations of Central Mortgage & Housing Corporation reached an all-time high last year, according to president D. B. Mansur's annual report.

The total number of dwelling units completed in 1948 was 81,243. Loans approved by the Corporation, both direct and jointly with lending institutions, amounted to $41.2 million. This sum covered 18,827 units, an increase of 72 per cent over 1947's total of 10,933 units.

Of the 81,243 dwelling units completed in 1948, 6,934 or 9 per cent were built under direct C.M.H.C. auspices. Another 11,939 or 15 per cent were built under the National Housing Act jointly with lending institutions. The integrated housing scheme accounted for slightly less than one-third of the National Housing Act units.

The average loan per dwelling unit rose from $4,869 in 1947 to $5,399 in 1948. Preference was for single family, one story houses, with single family, one-and-a-half story houses in second place.

Gross revenue during the year was $11.5 million, realized chiefly from property rentals and interest on Housing Act loans. After allowing deductions for administration, maintenance, depreciation and other charges, a net income of $2.5 million was left. This sum was transferred to the reserve fund, which stood at $7.2 million at December 31. In accordance with the legislation creating Central Mortgage the fund was reduced to $5.0 million by the transfer of $2.2 million to the Dominion treasury.

Completions Up 50 Per Cent

The number of dwelling units completed during the first two months of 1949 is estimated at 11,450 by the Dominion Bureau of Statistics. In the same

(*Continued on page 160*)

How Arc Welding Simplifies Beam-To-Column Connections

MODERN welded buildings are being erected in less time and at lower cost with arc welding. Structural members are designed to permit fast shop fabrication wherever possible. For erection, columns, girders and beams are aligned, bolted, guyed and then arc welded with Lincoln "Fleetweld 5" electrodes using Lincoln Engine Driven "Shield-Arc" DC welders. The following examples of beam-to-column framing are typical of structural connections being used on multiple story buildings in various parts of the country and are discussed in detail in a new series of Structural Studies, available from The Lincoln Electric Company.

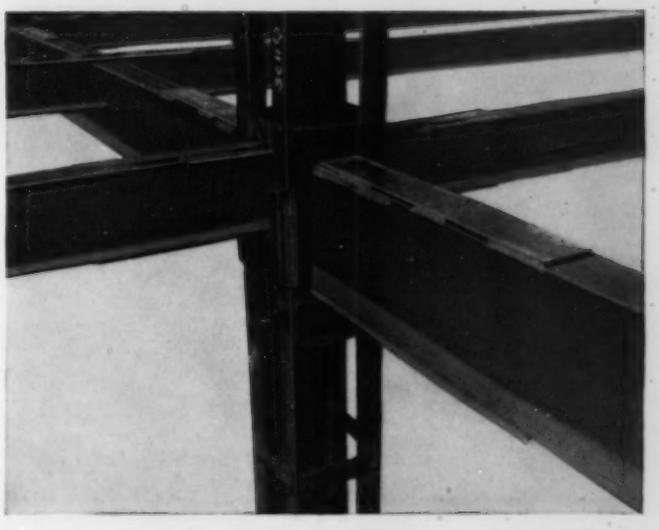


Fig. 1. Main girders, supported on cross channel plates, run directly through main columns. Four column angle sections shown are for temporary support during erection and later serve for composite steel and concrete columns. This construction is used on a Los Angeles Bell Telephone Building extension.

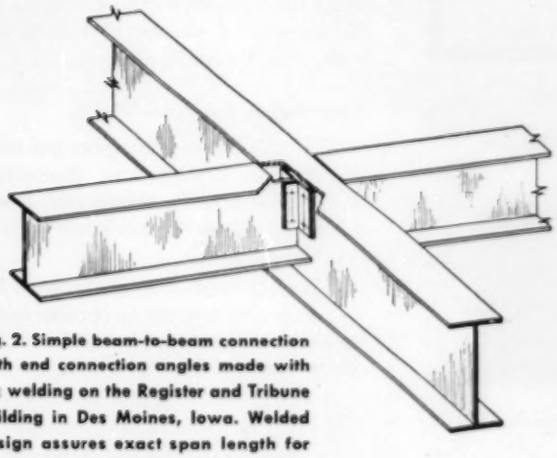


Fig. 2. Simple beam-to-beam connection with end connection angles made with arc welding on the Register and Tribune Building in Des Moines, Iowa. Welded design assures exact span length for beams and exact spacing of main girders.

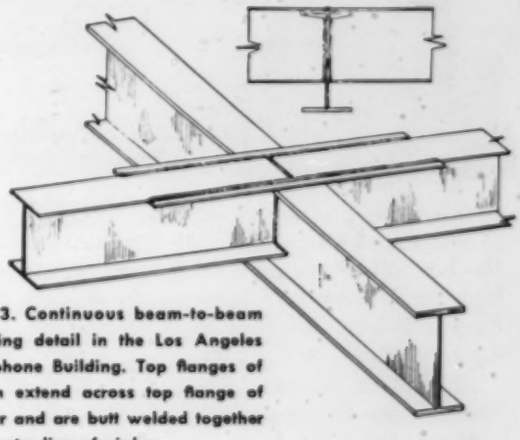


Fig. 3. Continuous beam-to-beam framing detail in the Los Angeles Telephone Building. Top flanges of beam extend across top flange of girder and are butt welded together on center line of girder.

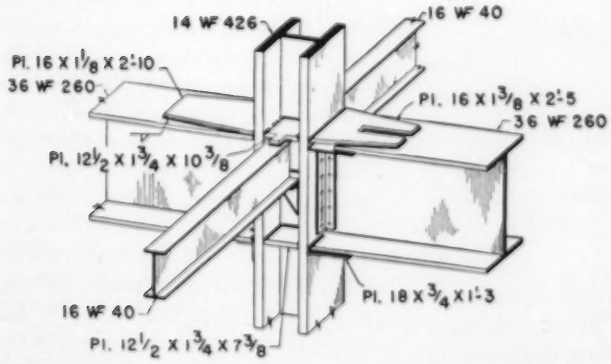


Fig. 4. Framing details at third floor level of ten story addition to Register and Tribune Building. All holes are eliminated from main columns by fillet welding or plug welding erection brackets to web and erection angles to column flanges.

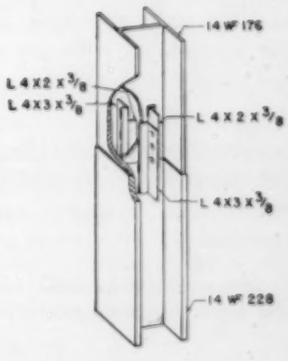
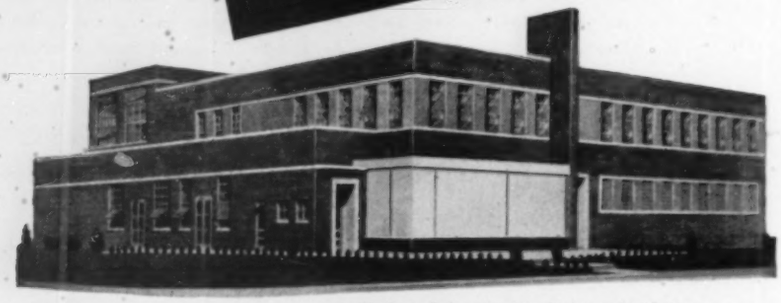


Fig. 5. Column splice at third floor level uses splice angles shop-welded to column webs. During erection, angles serve to hold columns in alignment while field-welding. Column ends are milled square in the shop and edges bevelled for simpler field-welding.

The above is published by **THE LINCOLN ELECTRIC COMPANY** *in the interests of progress.*

More complete details on above structural welded designs are given in S.S.A.W. Plates 113, 114 and 115. Free to engineers. Write on your letterhead to The Lincoln Electric Company, Dept. 152, Cleveland 1, Ohio.

in MODERN buildings... it's ALBERENE



Modern dairy plant in Richmond, Virginia.
Architects: Ballou & Justice

In this attractive, modern plant, it's *mullions* by Alberene — because Alberene mullions match so well the shadow effect of the windows . . . blend so perfectly with the exterior of the building as a whole.

And . . . it's Alberene Stone, too, for modern-looking, durable, maintenance-free spandrels . . . sills . . . stools . . . trim.

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• **Esthetically,** Alberene soapstone is *right* for giving a building — institutional *or* industrial — the modern touch. *Because* . . . its natural greenish-blue color harmonizes with any decorative pattern. *And* its moisture-proof surface does not chip, scale, or split — it *always* looks good!

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Why not write or phone us today for samples and further information?

ALBERENE STONE CORPORATION of VIRGINIA

419 — 4th Ave., New York 16, N. Y.

NEWS FROM CANADA

(*Continued from page 158*)

period construction commenced on 4,811 units, and the number under construction dropped from 56,456 at January 1 to 49,667 at February 28. Completions in these two months are about 50 per cent higher than in the corresponding period last year.

The Bureau estimates that one-quarter of the dwelling units completed in the first two months of 1949 were for rental purposes and the remaining three-quarters were for owner-occupancy. These proportions are the same as those for rental and owner-occupancy housing built during 1948.

The average length of time required to build the dwelling units completed in February was 7.3 months. This represents the normal seasonal increase. Only 17 per cent of the dwelling units took more than 9 months to complete.

Low Rents For Non-Vets?

The crying need is for more low-rental housing for non-veterans, Reconstruction Minister R. H. Winters declared in a recent address to the Toronto Junior Board of Trade.

"It is the hope of the government that as much new housing as possible can be provided through private endeavor and local enterprise," Mr. Winters said. "Privately initiated housing may, nevertheless, have to be supplemented by even further government support. Because of the constitutional problem, this will be dependent on the cooperation between all levels of government."

The Dominion Government, through Central Mortgage & Housing Corporation, is now directly involved in building low-rental housing for veterans. The projects are jointly subsidized by the government and the municipalities concerned. Any new proposal is likely to require provincial participation to insure its success. Municipalities complain they cannot provide the necessary schools and services for government housing projects since they don't pay the full rate of taxation. Any expansion in the low-rental field is almost certain to require that local sources of revenue be augmented by provincial grants.

Townsite for Mining Company

Discovery of new lead, zinc and copper fields 350 miles north of St. John's, Newfoundland, leads to announcement

(*Continued on page 162*)

A typical laboratory

. . . more than four miles of them . . . in the great new

UNITED STATES NAVAL ORDNANCE LABORATORY

Architects: Eggers & Higgins, New York — *Builders:* Charles H. Tompkins Co., Washington

A typical corridor

The U. S. Naval Ordnance Laboratory at White Oak, Maryland is one of the most modern and best equipped research and development establishments in the world. Comprising nearly 100 buildings on a 938 acre tract, it employs 2,300 people working in nearly every field of physical science and engineering.

Meeting the Navy's most exacting specifications, Mills standard and custom built partitions and wall linings and specially fabricated panels transform building interiors into offices, general laboratories, engineering and mechanical testing laboratories and many other enclosures. As White Oak's space needs change, these Mills partitions will be rearranged to fit the new requirements—quickly, easily, economically.

THIS IS one of the world's largest installations of movable steel partitions.

But *quality* rather than size is its most significant feature . . . quality that is characteristic of Mills Metal Partitions. These movable walls incorporate exclusive features . . . such as all welded construction of individual partition units and sound-deadening treatment of their surfaces . . . features that make Mills the demonstrably superior system for flexible division of floor space.

Insulated and sound proofed to provide ideal working conditions, Mills Metal Partitions are permanent in appearance and function. Yet they can be quickly dismantled and rearranged to meet changes in space requirements. In many instances the change can be accomplished over night or during a weekend.

Simple and refined in architectural design they are available in a wide variety of styles, durable finishes and attractive colors to meet specific requirements for buildings of every type. *The Mills Company, 961 Wayside Road, Cleveland 10, Ohio.*

Mills Metal Partitions can solve your space division problems. See the new 44 page Mills Catalog in Sweet's Architectural File for 1949 or write for your own easy-to-handle individual copy. Just ask for Mills Catalog 49-0.

MILLS METAL PARTITIONS

OAKLAND, CALIFORNIA 3743 Alameda Ave. **HUNTINGTON PARK, CALIF.** 2071 Laura Ave. **FRESNO, CALIFORNIA** 1703 Fulton St.

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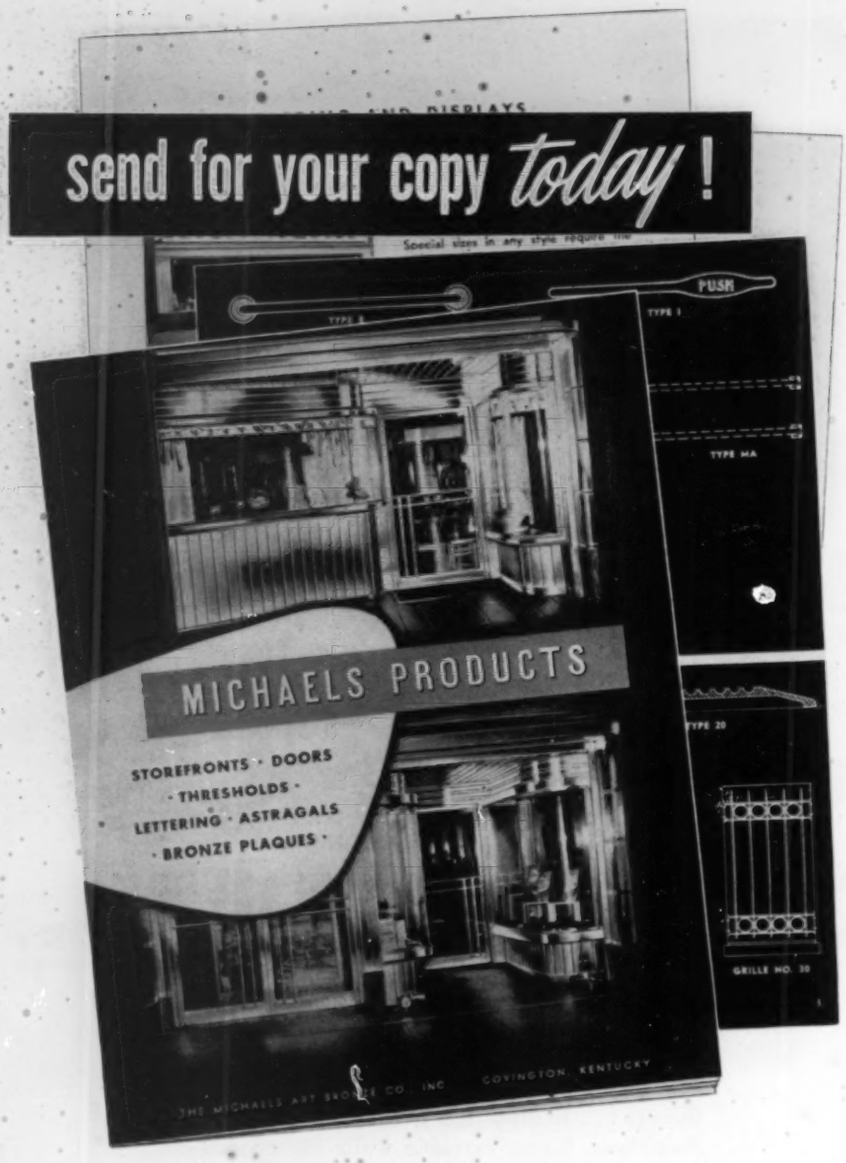

Every architect and builder should have a copy of this brochure. It contains much information on Michaels building products... products that are well known for their unusually high quality. And architects have found that Michaels has the men, the machines, and the know-how to faithfully reproduce in metal their most exacting specifications. A partial list of Michaels stainless steel, aluminum and bronze products is shown below. If your plans call for something special, send us the blueprints. We'll be glad to submit quotations. It will be to your advantage to talk over your requirements with Michaels.

MICHAELS PRODUCTS

Bank Screens and Partitions
Welded Bronze Doors
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Lamp Standards
Marquises
Tablets and Signs
Name Plates
Astragals (adjustable)
Stair Railings (cast and wrought)
Wrought and Cast Radiator Grilles
Grilles and Wickets
Kick and Push Plates
Push Bars
Cast Thresholds
Extruded Thresholds
MI-CO Parking Meters
Museum Trophy Cases

The MICHAELS ART BRONZE Co., Inc., 234 Scott St., Covington, Ky.

Representatives Wanted

★

NEWS FROM CANADA

(*Continued from page 160*)

by the Buchans Mining Company that it will spend $2 million on a townsite in the vicinity. It will include 100 houses, schools, stores and municipal and company buildings. The Dominion Government has also stated that extensive harbor works, road improvement and housing development will be undertaken throughout the island.

Integrated Plan to Continue

Doubt as to the future of Central Mortgage & Housing Corporation's integrated housing plan has been dispelled by Hon. R. H. Winters, Minister of Reconstruction and Supply. Until it was suspended on Dec. 31, the plan was widely used by builders to erect houses for sale to veterans at a price approved by Central Mortgage. The Corporation undertook to arrange priorities for materials and to buy any houses remaining unsold after a certain length of time.

In the past, some buyers of integrated houses have relied on the agreement between the builder and Central Mortgage to protect their interests. Mr. Winters says, "While there is nothing in the arrangement that justified this assumption, the Government feels that it would not be prudent to proceed with the plan without taking steps to correct this situation by reducing the possibility of its recurrence and making provision for remedial action where failure does occur in the future."

More than 13,000 houses have been undertaken using the integrated plan and all but 43 of those completed have been sold. Central Mortgage took over the latter in accordance with its purchase commitment. On the other hand, various buyers have been in danger of losing down payments made to the builder, or have had to pay higher prices because the builder ran into financial difficulty. Classic case is a Calgary project where the builder downed tools leaving 40 veterans in the lurch (Architectural Record, Jan., 1949). During the ensuing litigation, the counsel for Central Mortgage and the Manufacturers' Life Assurance Company, co-lender under the National Housing Act, assured the victims that their down payments would be refunded.

The new rules provide that no sale is to be made final until the house is 90 per

(*Continued on page 164*)

Bruce Block Floors combine modern beauty with important practical advantages. Acclaimed by architects as ideal floor for homes, apartments, schools, offices, stores.

There's no floor more stylish or more beautiful than one of hardwood in modern block design. And there's no other type of floor that also has all these practical features: (1) Easily installed over concrete or wood; (2) Lasts the life of the building; (3) Comfortable underfoot—warm, resilient, quiet; (4) Economical to maintain in perfect condition.

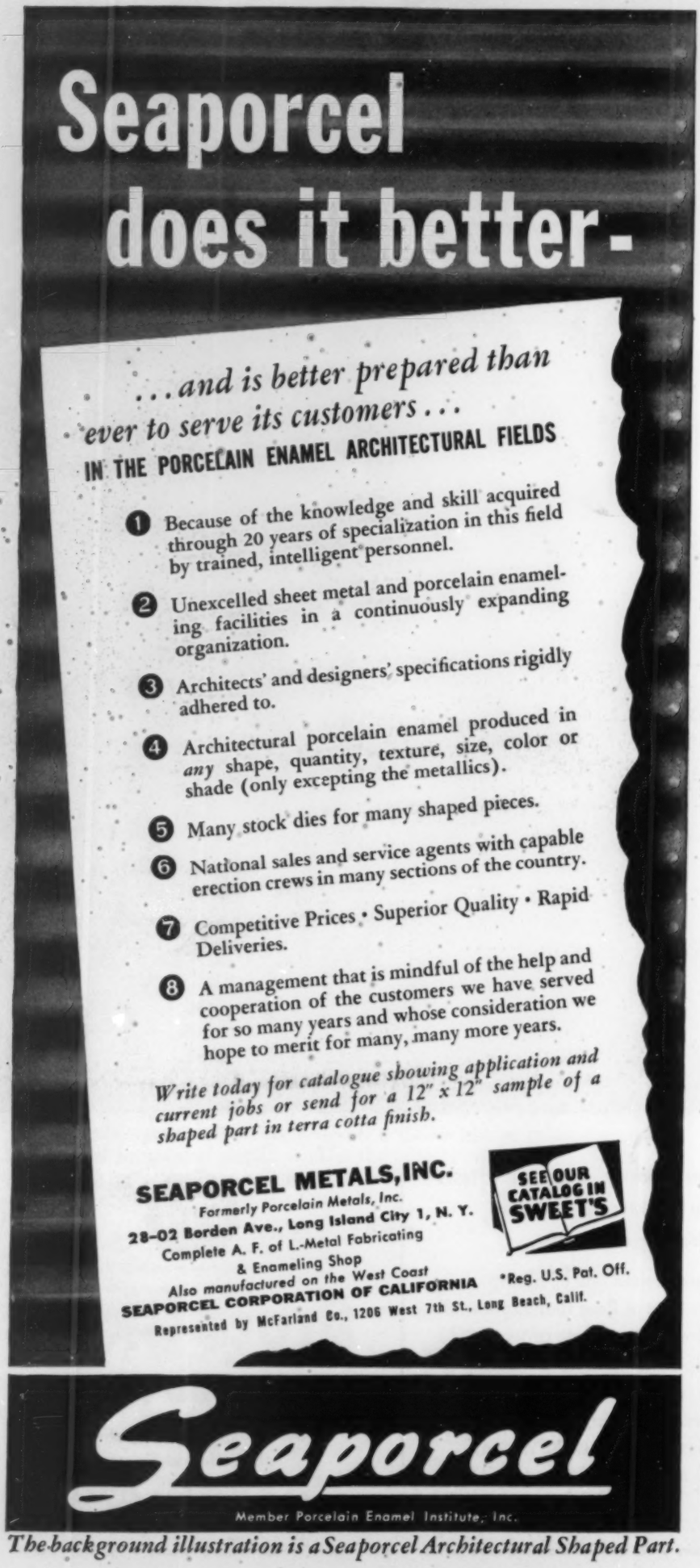
Over 100 million feet of Bruce Blocks are now giving completely satisfactory floor service in homes and buildings throughout the nation. *See our catalog in Sweet's or write E. L. Bruce Co., Memphis, Tenn.*

BRUCE

Bruce Block
HARDWOOD FLOORS

Product of World's Largest Maker of Hardwood Floors

Other Bruce Products: Strip and Plank Hardwood Floors • Yellow Pine and Hardwood Lumber • Bruce Floor Cleaner, Waxes, Finishes • The Bruce Doozit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...and is better prepared than ever to serve its customers...
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Write today for catalogue showing application and current jobs or send for a 12" x 12" sample of a shaped part in terra cotta finish.
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Seaporcel
Member Porcelain Enamel Institute, Inc.
The background illustration is a Seaporcel Architectural Shaped Part.

NEWS FROM CANADA

(*Continued from page 162*)

cent completed. Down payments made by the purchaser are to be placed in trust until delivery of the house, and the builder must produce paid bills when applying for mortgage advances.

When the house has reached the first floor joists stage of construction, the builder must deliver a conveyance of the property to Central Mortgage, in order to give the Corporation effective control until the work is finished. At the same time as it receives the conveyance, the Corporation provides working capital for the builder by advancing him the difference between the mortgage loan and the sale price.

Claims Toronto Children Doped

Attention has been drawn to an appalling by-product of the housing situation in Toronto — and no doubt other large cities as well — by Hugo Wolter, consultant to the Civic Advisory Council. He says that the children of many tenant families are being kept in a constant state of repression. Inadequate, congested housing restricts their play and a chance to release surplus energy. They become irritable, unable to sleep and sedatives are given to keep them quiet. A cycle of dosing develops.

Dr. Alan Brown, chief of the medical staff of Toronto's Hospital for Sick Children and leading child authority, agrees that sedatives are being widely prescribed for children. In a newspaper interview he declared that the crowded conditions under which many families must live will be reflected in the psychological outlook and physical health of the children in the next few years. "Most child problems today," he said, "can be traced to poor housing conditions."

In an anticipated federal election year, Mr. Wolter's claim and Dr. Brown's confirmation of it may be expected to add fuel to the flames of agitation for a national public housing program.

Research Station Set Up

The first regional station of the Division of Building Research, National Research Council, has been established at the Council's prairie regional laboratory on the campus of the University of Saskatchewan. The Division thus enters into active collaboration with a University well known for its outstanding work on deterioration of concrete in alkali

(*Continued on page 168*)

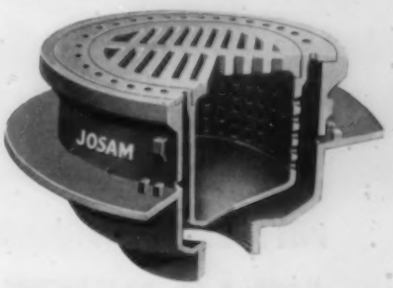
THERE'S A REASON WHY

when DRAINS are called for

THE MAJORITY calls for Josam

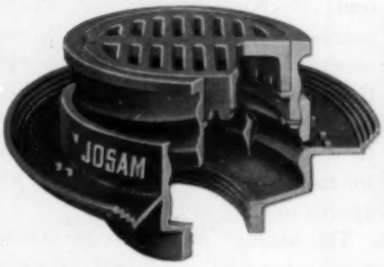
★ Josam's leadership in the field of plumbing drainage didn't just happen. The reason for it is that Josam has never been content to follow, but has been continuously pioneering and developing new plumbing drainage products. For example, the three products illustrated on this page, are a few of many invented by Josam which are the standard of the industry today. Because of the extent of the Josam line, chances are that there is a product in the Josam line designed to meet the need exactly... even though it looks "special". For example, there are over 870 types of Josam floor and roof drains *alone* manufactured today. Why take chances on drainage problems, when Josam takes out the guesswork for you. Do as the majority does—get the details *first* on Josam products. Use convenient coupon below for quick action!

Josam Non-Clog Triple Drainage Floor Drains



Developed by Josam to prevent drain lines from becoming clogged with debris and to assure continuous drainage of water. If sediment container becomes filled, drainage continues through holes in auxiliary rim, signalling need for cleaning.

Josam Adjustable Top LEVELEZE Floor Drains



An exclusive Josam development to solve drainage problems caused by variations in floor levels. Now, for any reason, where the floor level is changed after the drain is installed, simply raise or lower the adjustable top —and the new floor is met!

Josam Roof Drains with Removable Dome Strainer and Sediment Cup

Pioneered by Josam to permit continuous drainage in spite of accumulation of debris on roofs. Today it is the widest used roof drain in the industry because it is adapted to the greatest number of roof conditions. Also available with promenade top, or with extra large dome or with integral expansion joint.

OTHER JOSAM DEVELOPMENTS OVER THE YEARS

GREASE INTERCEPTORS

SWIMMING POOL EQUIPMENT

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MODERATOR SHOWER MIXING VALVES

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Please send free literature on the following types of drains:

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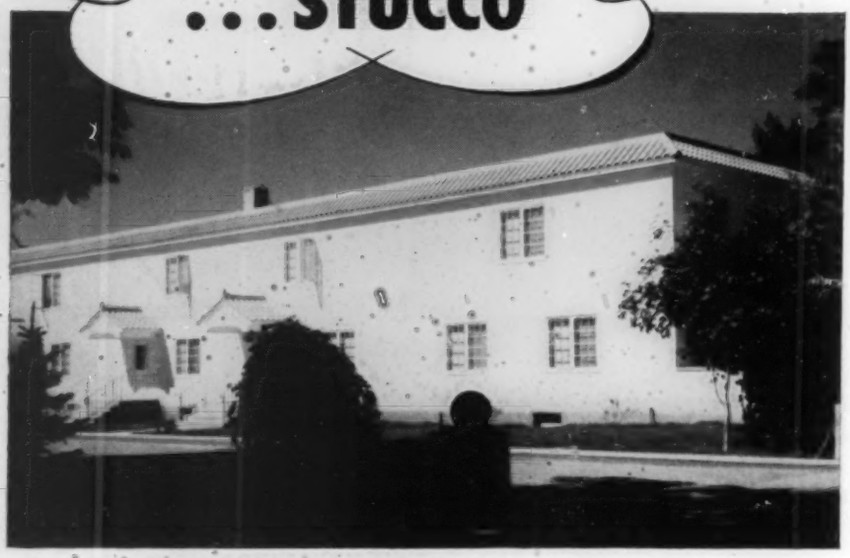

For lasting stucco...
ATLAS WHITE CEMENT

Here's whiteness, appealing brightness that finds and fills the eye... *lasting* beauty that smiles at time and weather. It is clean, crisp, enduring stucco . . . made with a matrix of Atlas White Cement.

Such a matrix . . . pure white, or one of an infinite variety of pigment-based colors . . . brings out the full beauty of stucco. It also sets off, in blend or contrast, the full color of pigments used in portland cement paint or the aggregates used in terrazzo and architectural concrete slabs.

Utility? Durability? Atlas White Cement complies with ASTM and Federal Specifications for portland cement. It has the same advantages when used for concrete. Stucco, cement-paint, terrazzo, architectural slabs . . . made with Atlas White Cement . . . all clean easily and maintenance costs stay low.

ATLAS WHITE *DURAPLASTIC
air-entraining portland cement adds new advantages to stucco at no extra cost. It provides increased plasticity that makes application easier; insures greater durability; offers stouter resistance to weather. Ask for details.

For further information on the uses of Atlas White Cement, see SWEET'S Catalog, Section 4B/3 and 13C/5, or write to Atlas White Bureau, Universal Atlas Cement Co. (United States Steel Corp. Subsidiary), Chrysler Bldg., New York 17, N. Y.

**DURAPLASTIC is the registered trade mark of the air-entraining portland cement made by the Universal Atlas Cement Company.*

AR-C-27

FOR BEAUTY AND UTILITY
ATLAS WHITE CEMENT
FOR TERRAZZO, PAINT, SLABS, STUCCO

"THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries*
Sunday Evenings—ABC Network

NEWS FROM CANADA

(*Continued from page 164*)

soils, rammed earth, cinder concrete, insulation, building papers and other construction problems.

The station consists of a room 44 by 22 ft., fitted with apparatus for full-scale testing of wall panels, 8 by 7 ft., under conditions of simultaneous heat and water vapor flow. Refrigeration equipment will provide air temperatures down to −40° F on one side of the panel, while temperature and humidity on the other side are controlled at levels normally encountered inside buildings. It is intended that this cooperative research project will serve as a model for similar enterprises to be initiated by the Division of Building Research with other Universities.

Construction Pace Quickens

According to MacLean Building Reports, construction contracts awarded for the first three months of 1949 totaled $203.7 million compared to $128.5 million for the same period in 1948. This is an increase of nearly 60 per cent. It goes a long way to insure confidence in a recent Department of Trade & Commerce forecast of a 12 per cent dollar gain in new construction investment this year.

March totals were $67.6 million and $51.3 million for 1949 and 1948, respectively, showing a boost of over 30 per cent. Revived interest in industrial building and, to a lesser extent, engineering construction, was responsible. Residential and commercial building registered slight set-backs, for the first time in months. Residential remained the largest category for the quarter with awards totaling $69.4 million.

The staying power of the postwar housing boom has astonished many economists. Since 1946 there's been no shortage of expert opinion that the backlog of shelter demand would shortly be reduced and the force behind high prices peter out. This conclusion cannot be justified in view of the large amount of new housing business being placed. It may be true enough in the long run, but the financial soothsayers appear to have been premature in the timing of their prophecies.

Easier Credit Seen Inadvisable

The National House Builders' Association continues to agitate for higher loan appraisals under the National

(*Continued on page 170*)

THE ROOSEVELT HOTEL
New Orleans, La.
Seymour Weiss, Pres. & Mng. Dir.

One of the many hotels where FABRON is used for its good appearance, long term durability and easy maintenance. FABRON is serving in countless institutional buildings such as hotels, hospitals, universities, commercial buildings, theatres, etc.

• Some architects naturally assume that FABRON is too expensive for their clients' budgets. What a pleasant surprise when they learn its true cost! For this canvas-plastic-lacquer covering is so beautiful, so practical and of such high quality that they can hardly believe it comes within the average decorating budget. Yet it does. And, in addition, it pays for itself several times over because it reduces maintenance to the minimum . . . eliminates periodic redecorating . . . outlasts paint by several redecorating periods.

If you have taken FABRON's cost for granted, find out its ***true*** cost on your next institutional project. From your blueprints we'll gladly furnish material estimates and approximate installation costs. Moreover, we'll be pleased to draw up a suggested decorative scheme—complete with samples—if you feel it will be helpful. No obligation, of course.

IMPORTANT: FABRON, being a specialty, requires somewhat different handling in specification if it is to be obtained at the lowest cost, avoiding penalties and extras. Let us help you with data on FABRON ***before your next project reaches the specification stage!***

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Represented in Canada by The Robert Simpson Company Limited—Special Contract Division

• In one operation, FABRON hides plaster blemishes, prevents expensive plaster repairs, assures complete washability and color fastness. Saves money to the owner by eliminating periodic redecorations. Initial cost falls within present-day budget. Furnished in double rolls. Applied like wallpaper. Easily repaired by invisible inlay method. More than 180 colors, textures and patterns offer a decorative latitude unmatched by conventional treatments. And—FABRON prevents the spread of fire, carries the label of the Underwriters' Laboratories, Inc.

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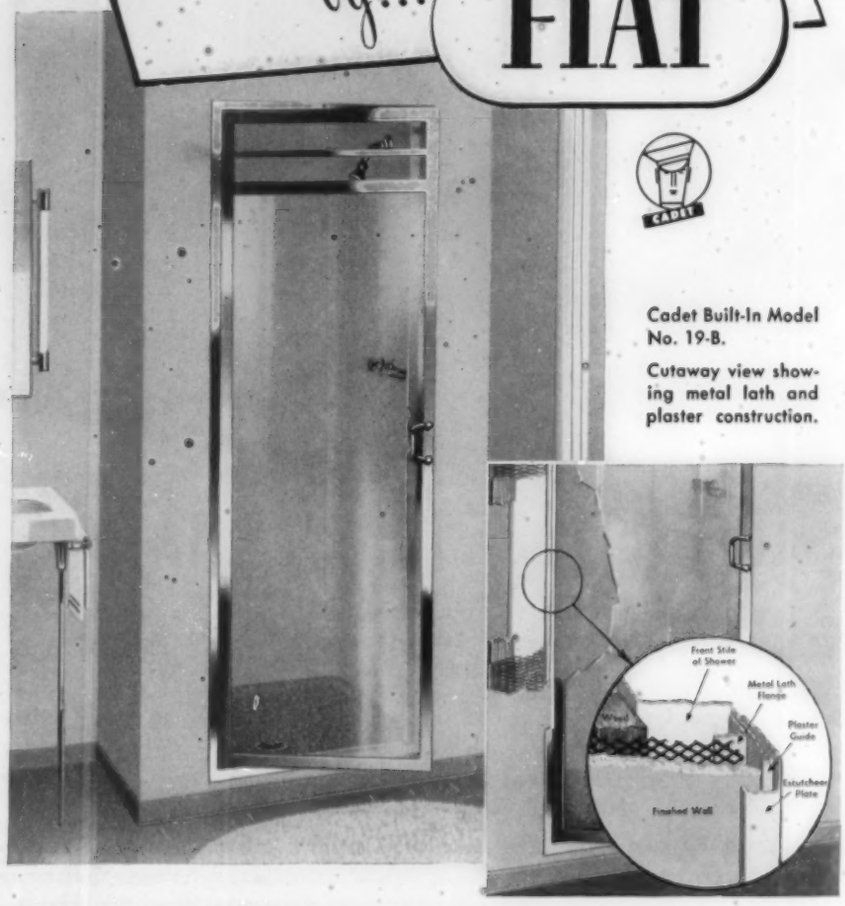
See our CATALOG in SWEET'S FILE

The canvas-plastic-lacquer wall covering for institutions

Shower Cabinets designed for...

Modern bathrooms

by... FIAT



Cadet Built-In Model No. 19-B.

Cutaway view showing metal lath and plaster construction.

The new Fiat shower cabinet models are especially designed for modern bathrooms and for modernizing old bathrooms.

The Built-In Cadet design No. 19-B, for example, has construction features that enable the builder to completely recess the cabinet and to extend the plaster and tile right up to the door frame which has special flanges to receive metal lath and plaster coats.

The plaster joint around the door opening is covered completely by the Fiat escutcheon that frames the door and gives a smart trim finish to the installation.

This recessed Cadet shower cabinet is simple to install and is the only shower cabinet available today that has these special built-in construction features.

Other Fiat shower cabinets now available with prompt delivery are the Commodore 2000-C, Admiral, Ensign, Cadet Corner Type, Cadet 17-R, Skipper and Plebe. See description with specifications of these showers in Sweet's Architectural File, section 246/1 and Building File, section 6a/6 or write for catalog.

FIAT METAL MANUFACTURING COMPANY

Chicago 13, Ill. • Long Island City 1, N. Y. • Los Angeles 33, Calif.

In Canada — Fiat showers are made by The Porcelain and Metal Products, Ltd., Orillia, Ontario

NEWS FROM CANADA

(*Continued from page 168*)

Housing Act. So far, Central Mortgage & Housing Corporation has turned a deaf ear to its pleas. Central Mortgage's president, D. B. Mansur, says the Corporation is unwilling to see many of the costs involved in present day construction capitalized into the long term mortgage debt of the home owner.

The apparent soundness of this position is seen in comparing the number of housing starts made in the U. S. and Canada during 1948. On a per capita basis we led by 8 per cent. On a national income basis we led by 83 per cent.

There have been no lack of warnings in the U. S. as to the inflationary dynamite that might be set off by further easing of construction credits. Should not we in Canada, out-building the most prosperous nation in the world, be even more concerned?

Big Cities Vulnerable Targets

Should lending for industrial expansion and housing construction be brought to an end in Toronto and Montreal? Lt. Col. Douglas S. Harkness, M.P. for Calgary East, thinks so.

In a recent speech in the House of Commons, Colonel Harkness urged the government to take steps to minimize loss of life in the event of an atomic war. To encourage dispersal of industry, he suggested that the Industrial Development Bank refuse loans to firms wishing to build in congested urban areas and extend loans freely to firms wishing to establish elsewhere. Pressure, he said, could be put on other lending institutions to achieve the same end.

Without being alarmists, many residents in Canada's two metropolises have been concerned with the way in which new buildings of vital importance are being crowded together. Toronto, for instance, is putting all its hospital eggs in one basket. When its current building program is completed, over three-fourths of the city's hospital beds will be located within a block's radius of the provincial parliament buildings and headquarters of the hydro-electric power commission, to say nothing of a university where essential scientific work is being done. Montreal, on the other hand, is jamming a new long distance exchange for overseas calls and an international aviation building into space within a stone's throw of the city's two principal railway stations.

Aluminum

LIFETIME PROTECTION FOR A STATELY OFFICE BUILDING...OR *a house of charm*

Oldest aluminum roof in the world is said to be on the Chief Secretary's Office Building in Sydney, Australia—put there in 1880, and still in sound condition. Here is ample evidence of aluminum's rustproof permanence and freedom from maintenance. Add aluminum's lightness-with-strength, its heat reflectivity, corrosion resistance and soft, natural beauty, and you know why aluminum is so favored and versatile a building material.

See, for instance, how aluminum is used on the House O'Charm, in Detroit. Reynolds *Lifetime* Aluminum Gutters and Downspouts, in the new stipple-embossed finish, mate perfectly with traditional materials; with no need for protective painting, no danger of staining walls. Yet cost is only half as much as for other rustproof materials.

From the moment of Reynolds entry into aluminum production, aluminum output has steadily increased... and with it architectural appreciation of its manifold utility. Aluminum roofing and siding in various forms, aluminum windows, and architectural shapes are among the Reynolds Building Products that offer inspiration to creative minds. For descriptive literature in A.I.A. File form, please write us.

Reynolds Metals Company, Building Products Division,
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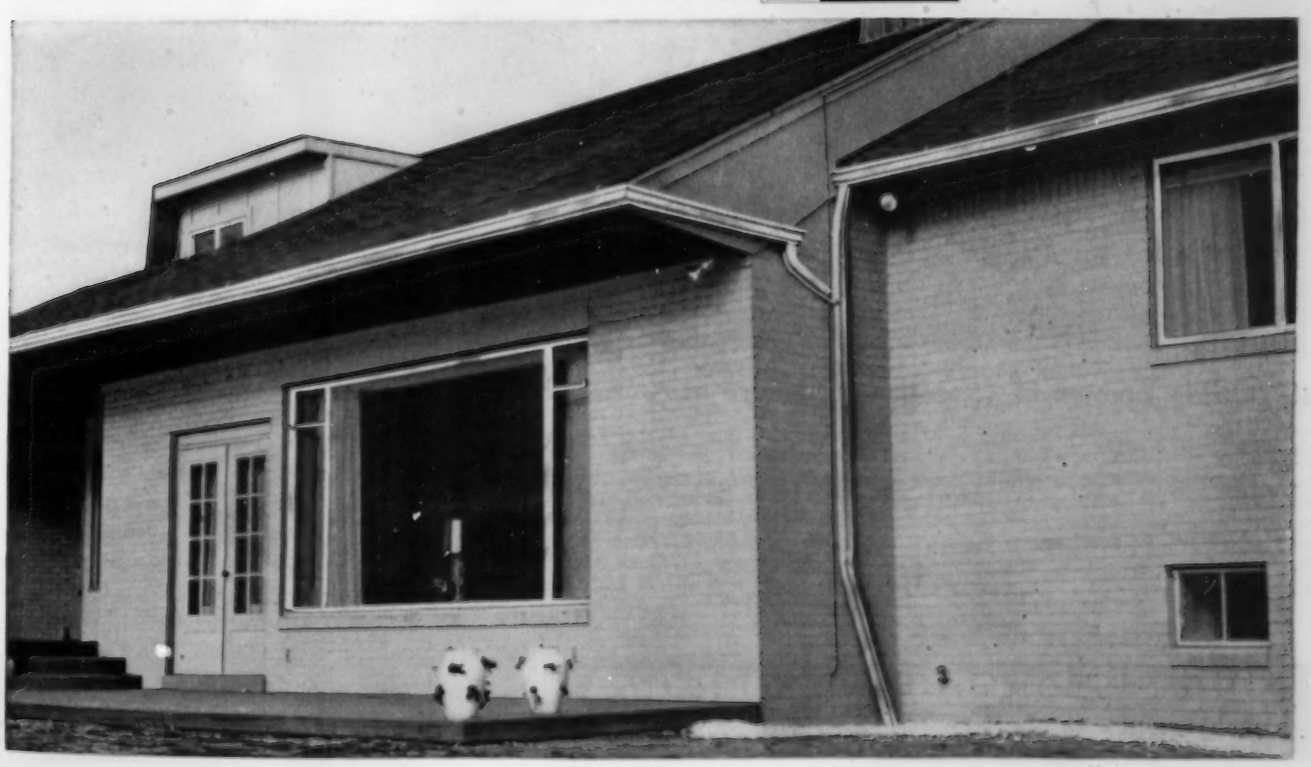
Offices in 32 principal cities.

REYNOLDS *Lifetime* ALUMINUM

IF YOU SEE RUST YOU KNOW IT'S NOT ALUMINUM

REYNOLDS *Lifetime* ALUMINUM BUILDING PRODUCTS

House O'Charm, Detroit, Michigan.
Walter T. Anicka, Architect.
Bain & Anderson, Builders.
Specification for rain carrying equipment: Reynolds *Lifetime* Aluminum Stipple-Embossed Gutters and Downspouts, O. G. Style.



THE RECORD REPORTS (*Continued from page 22*)

Attorney General Clark: "The vigorous enforcement of the anti trust laws with respect to all matters pertaining to housing will be continued. We are determined that the consumer shall have the benefit of the competitive prices and freedom of selection to which he is entitled."

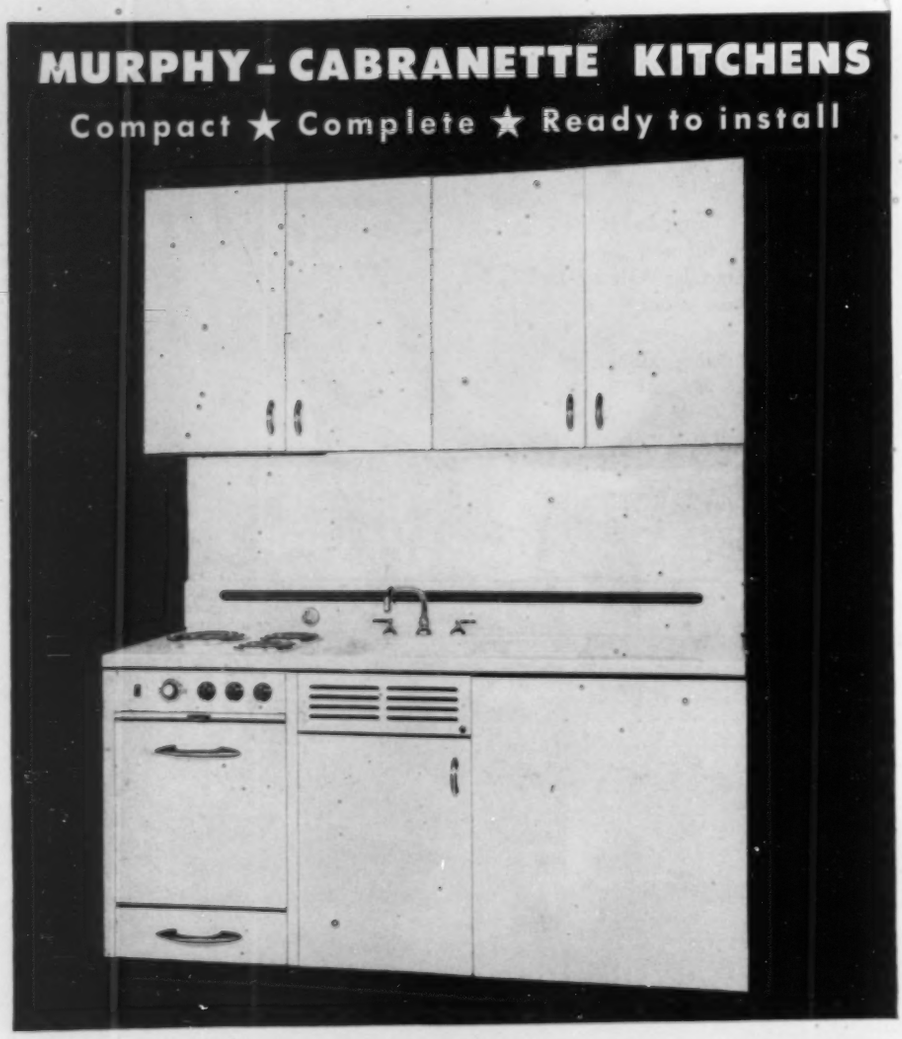
• Late Bureau of Census figures show a marked growth in the wood prefabrication industry. Preliminary reports from the 1947 Census of Manufacturers have shown that producers in the Prefabricated Wood Products Industry shipped products valued at $107 million during 1947, nearly 12 times the $9 million worth shipped in 1938 when the last such census was taken. Prefabricated homes constituted $63 million of the 1947 total while $8.5 million worth of dwellings was produced in 1939.

• A strong effort is being made in Congress to double the financial assistance to states for construction of hospitals and health centers. New national health measures call for increasing the $75 million per year now extended in federal aid to $150 million annually. These funds share estimated construction costs of approved non-federal hospitals and health centers up to two-thirds of the total amount.

• Data just released by the Department of Commerce shows 46,000 builders in the country. This is an increase of 13,000 or 33 per cent over the 33,000 reported in the 1939 Census. Figures came from social security returns.

MURPHY-CABRANETTE KITCHENS

Compact ★ Complete ★ Ready to install



Durability proven in 25 years of service in rental properties

You'll find tenant appeal in the enduring beauty of genuine vitreous porcelain, in the one-piece sink and range top free from dirt-harboring cracks and crevices, in the efficient refrigerator with its smart push-button door and stainless steel frozen-food compartment.
You'll find durability in the vitreous porcelain surfaces that never require repainting but wash bright and clean with soap and water. You'll find economy in a refrigerating unit of high efficiency, in a refrigerator with super-insulation, in a gas or electric range of advanced design. These are not mere claims. They are facts . . . *proven* by thousands of Murphy-Cabranette Kitchens, some of which have been in active service for over twenty years.

Write for new bulletins.

DWYER PRODUCTS CORPORATION
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FRANCKE HUNTINGTON BOSWORTH

Francke Huntington Bosworth, Architect, and former dean of the College of Architecture at Cornell University, died on April 27 in New York City, following a long illness. He was 73.

Mr. Bosworth, with the late Frank Holden, founded the New York architectural firm of Bosworth & Holden in 1902 and practiced architecture there until the dissolution of the firm in 1918.

In 1920 Mr. Bosworth went to Cornell as professor of architecture and dean of the College of Architecture. He continued as dean until 1928 and as professor until his retirement in 1940.

EDWARD P. SIMON

Edward P. Simon, alumnus of Drexel Institute of Technology and former director of the Federal Housing Administration for the Eastern District of Pennsylvania, died at his summer home in Brant Beach, N. J., on May 10 at the age of 70.

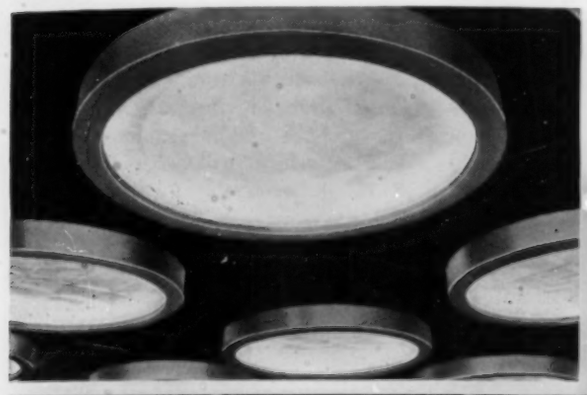
An architect by profession, Mr. Simon was senior partner in the Philadelphia firm of Simon & Boulware and designed some of Philadelphia's best-known buildings, among them the Philadelphia Municipal Stadium, the Fidelity-Philadelphia Trust Building and the Curtis Hall of Engineering. He was also the designer of the Meade Memorial in Washington and the First National Bank and Trust Company of Camden, N. J.

LE BRUN RECIPIENT

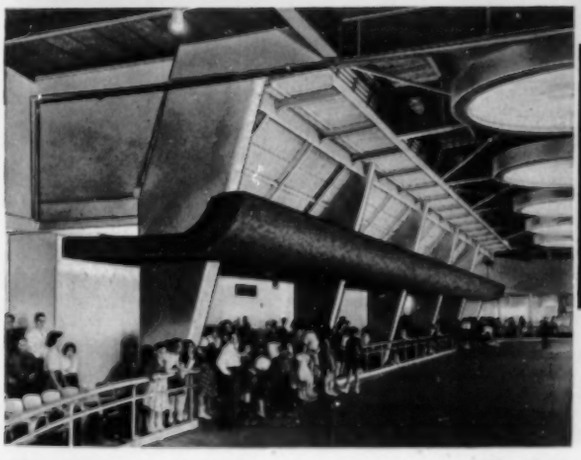
The 1949 Le Brun Traveling Scholarship of $2800 has been awarded to Miss S. Agatha Turner of Lubbock, Texas, it was recently announced by the New York Chapter, AIA. This is the first time that the well-known award has been made to a woman.

(*Continued on page 174*)

Fifteen such circular Marlou fixtures hang from the Rolladium ceiling. Each has a red, blue and green light with which seven different color effects can be obtained.



THEY ROLL BY NIGHT...



Trough light arrangement achieves soft, mellow indirect lighting in keeping with the ultra-modern decor of the Rolladium.

UNDER GLORIOUS MARLOU LIGHTS

. . . in one of the world's most luxurious roller skating rinks (to quote publication, "The American Roller Skater")—the Staten Island Rolladium, New Dorp, Staten Island.

Here may be seen striking examples of Marlou's creative custom lighting, planned with architects—truly *Selective* Slim Lighting—functional, distinctive and incredibly dramatic.

For *your* next lighting project, consult Marlou first!

Write, too, for illustrated data-packed catalog of Marlou's creative standard commercial and industrial fixtures.

Sold Through Electrical Wholesalers

MARLOU LIGHTS

Cold Cathode • Slimline • Planned Lighting

50 South Avenue, Fanwood, New Jersey

Designers and Manufacturers of Distinctive Lighting for Industry

THE RECORD REPORTS (*Continued from page 172*)

STORE REMODELING SHOW

New York's annual Store Modernization Show will be held in Grand Central Palace June 19 to 24, under the directorship of John W. H. Evans, as heretofore. With the advent of lower prices, a buyers' market and keener competition, store modernization becomes even more of a must as an investment in merchandising than ever before. The ideas, the designs and the techniques of store modernization will be displayed, as well as all of the materials, accessories and gadgets that contribute to successful merchandising. Winning designs from the current competition for "The best modernized store of the year" will be on exhibition. This competition has been open to Chambers of Commerce and civic groups and prizes totaling $500 have been offered.

Every day there will be interesting forum clinics taking up the different problems of store modernization, each presided over and lectured to by experts on the particular phases in question. The question period preceding the set speeches is always a lively debate.

Arrangements have been made for the distribution of invitation tickets through the architectural magazines and other sources which will save the visitor $1.00 of the combined registration fee and tax which, without the complimentary ticket, would cost $1.50.

• For floors that will look better and clean easier . . . that will last longer under the hazards to which they are subjected by everyday family life . . . AZPHLEX Asphalt Tile is unsurpassed. Consider these AZPHLEX *plus values:*

MAXIMUM RESISTANCE to indentation by foot traffic, rolling or standing loads.

GREASE RESISTANT in the highest sense of the word — won't stain or soften if subjected to animal, mineral or vegetable greases, alkalis, alcohol or mild acid solutions.

THROUGH-AND-THROUGH COLORS and marbleizing that will never wear off — fine texture that keeps a smooth, easily polished surface.

UNIFORM HIGH QUALITY and dimensional stability — every tile die-cut.

CUSTOM INSTALLATION to produce exactly the design you specify, in the colors you specify from our wide range of samples.

AZPHLEX is ideal for installation over wood, metal or concrete slab sub-floors, above, on or below grade. It is *flexible* — and so *tough* that 1/8" AZPHLEX is the equivalent of 3/16" regular asphalt tile. Available in 10 clear, true colors; 1/8" and 3/16" thicknesses; 6" x 6", 9" x 9", 6" x 12", 12" x 12", 14" x 28", 12" x 12" DUOTONE and 1" x 24" feature strips in all colors.

For complete information about AZPHLEX, call your AZROCK-AZPHLEX dealer — or write direct to

UVALDE ROCK ASPHALT CO.
Makers of AZROCK and AZPHLEX Asphalt Tile
FROST BANK BLDG. SAN ANTONIO, TEXAS

AZROCK ASPHALT TILE
AZPHLEX ASPHALT TILE

Design Project at Washington

Members of the upper three classes at the University of Washington School of Architecture are hard at work currently on the layout of a theoretical super-shopping center for Mercer Island. More than 150 students are engaged in the project, divided into eight working groups. Each group selected what it considered the most appropriate site on the north end of the island, and is now planning and laying out the 36 required business establishments and the parking areas needed for the center. Each group will make a scale model of the project.

Welding Scholarship Awarded

James Edgar Steed of Washington Court House, Ohio, a pre-junior in the department of architecture in the University of Cincinnati College of Applied Arts has been awarded the first of four $250 annual scholarships established at the University by the Lincoln Arc Welding Foundation.

ON THE CALENDAR

Through June 19: "From Colony to Nation — The Growth of American Culture from 1650 to 1815." Exhibition of painting, silver and architecture, The Art Institute of Chicago, Chicago, Ill.

June 3–30: Annual Akron Art Institute School Exhibition, Akron Art Institute, Akron, Ohio.

June 9–24: 9th Antique Dealers' Fair, Grosvenor House, London, Eng.

June 14–17: 3rd I-B-R Short Course on Steam and Hot Water Heating Systems, Champaign-Urbana Campus, University of Illinois.

June 1–Sept. 30: "Details of the City — Photographs by Godfrey Frankel," Museum of the City of New York, New York City.

June 19–24: 3rd Annual Store Modernization Show, Grand Central Palace, New York City.

June 20–23: 42nd Annual Meeting, National Association of Building Own-

(*Continued on page 176*)

Are you aware that AVA CABLES can save up to 40% on conduit size?*

Yes, on many electrical construction or modernization jobs in dry locations,† where sizable loads are involved, you may be able to work substantial savings with G-E Deltabeston® AVA cable.

Built for locations where operating temperatures are high, Deltabeston cables are insulated with heat-beating asbestos. That's why these cables can go to work at normal temperatures in smaller sizes than ordinary Type R building cables. General Electric Deltabeston AVA cables can actually cut cable size requirements as much as 40%, because their insulation permits smaller raceways.

To you, Deltabeston AVA cables mean *installation speed*, because they can help on many jobs by reducing the number of cables you put in—*material savings*, because AVA cables permit smaller conduit sizes—*weight savings*, because small size means light weight.

It will pay you to talk over the use of General Electric Deltabeston AVA cables with your electrical contractor. For specific information, write to Section Y33-65, Construction Materials Department, General Electric Company, Bridgeport 2, Connecticut.

† *As defined by the National Electrical Code.*

* **The figure above was worked out for a load of 470 amperes. Similar savings can be realized for other loads.**

GENERAL ELECTRIC

ers and Managers, Mount Royal Hotel, Montreal, Canada.

June 20–24: Summer General Meeting, American Institute of Electrical Engineers, New Ocean House, Swampscott, Mass.

July 13–15: Summer Convention, American Society of Civil Engineers, Mexico City.

Aug. 23–26: Pacific General Meeting, American Institute of Electrical Engineers, Fairmont Hotel, San Francisco, Cal.

OFFICE NOTES

New Addresses

The following new addresses have been announced:

Forge Construction Co., Inc., and Powell Construction Co., Inc., General Contractors, 405 North Ave., New Rochelle, N. Y.

You Design A Building!
You Engineer A Building!
You Build A Building!
WHAT FOR?
Beauty?
Stability?
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Ellison, the Balanced Door meets these specifications
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Edith Hernandez and Company, Interiors, 136 E. 74th St., New York 21, N. Y.

Kelly & Gruzen, Architects-Engineers, New York office, 80 Fifth Ave., New York 11, N. Y.

George M. D. Lewis, Architect, 445 Kressler Court (off Vine St.), Scranton, Pa.

Firm Changes

William E. Brackett, Jr., and M. McDowell Brackett have announced the change of their firm name from William E. Brackett, Jr., Architect, to Brackett & Brackett, Architects. Address: Technical Bldg., Asheville, N. C.

Olof Z. Cervin, A.I.A., until recently a partner in the firm of Cervin & Stuhr, Architects, of Rock Island, Ill., has announced his retirement from architectural practice and his availability to a limited number of clients for advice and counsel. He has established his new office at 3400 10th Ave., Rock Island, Ill., under the name of Olof Z. Cervin, A.I.A., Architectural Consultant.

Lockwood Greene, Engineers, Inc., of New York, has announced the election of Samuel B. Lincoln as president, succeeding Chester S. Allen, elected chairman of the board of directors.

Carroll Martell and Kenneth W. Brooks, both Registered Architects, have announced the formation of a partnership for the general practice of architecture and community planning under the firm name of Martell & Brooks, Architects, with offices in the Fernwell Bldg., Riverside & Stevens, Spokane, Wash.

ELECTIONS, APPOINTMENTS

Richard J. Canavan, Architectural Engineer, has been appointed technical secretary of the Producers' Council.

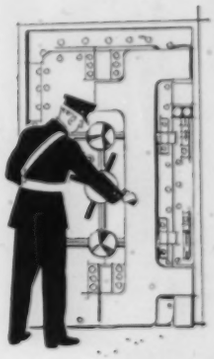
James R. Edmunds, Jr., of Baltimore, a past president of the A.I.A., has been re-elected chairman of the Construction Industry Advisory Council.

Educational Group Organized

The North Carolina Architectural Foundation, Inc., a non-stock, nonprofit charitable and educational corporation, was organized in January in Chapel Hill, N. C., to promote architectural education and research at North Carolina State College. The Foundation is sponsored by the North Carolina Chapter of the American Institute of Architects. Walter Hook, A.I.A., a member of the sponsoring Chapter, is president of the new organization.

CONSERVATIVE GOOD TASTE characterizes bank modernization today . . . and a strikingly apt medium is ENDURO Stainless Steel—in exterior trim, escalators, stairways, architraves and bank fittings. Banks and financial houses, ultra-conservative in the past, are finding functional design to be a stimulus to better customer relations.

Enduro—THRIFTY METAL OF 10,000 USES



THE METAL THAT SAYS "COME IN"...."KEEP OUT"

Republic ENDURO Stainless Steel . . . one of the most versatile materials at the architect's command . . . lends itself perfectly to functional design, simplicity, good taste, and to the *eye-appeal* that says, "Welcome! We value your patronage!" No less does its obvious strength and toughness, standing guard over architraves and no-admittance areas of the bank proper, tell the prowler, "Keep Out!"

Decoratively, ENDURO's versatility gives full rein to the architect's creative imagination. Its high strength-to-weight ratio makes it practical in thin section, readily contoured, shaped or surface-patterned. Its resistance to corrosion and its ease of cleaning broaden its applications and make it permanently beautiful. Structurally ENDURO is rugged, lightweight, resistant to heat and cold, has a low coefficient of expansion and possesses unusually long life. It is the *architect's metal!*

If not fully conversant with ALL of ENDURO's characteristics, see Sweet's Architectural File or write today to:

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 (Continued from page 132)

for plywood flats 12 ft. high and up to 5′ 9″ wide; carpentry shop about 30 x 30 ft. for making stock sets; a large scene studio with paint frame, up to 40 x 80 ft., for setting up and painting sets; rooms for costume storage and possible dyeing and sewing. Sizes noted are for large stations; in smaller plants they might be reduced.

EQUIPMENT

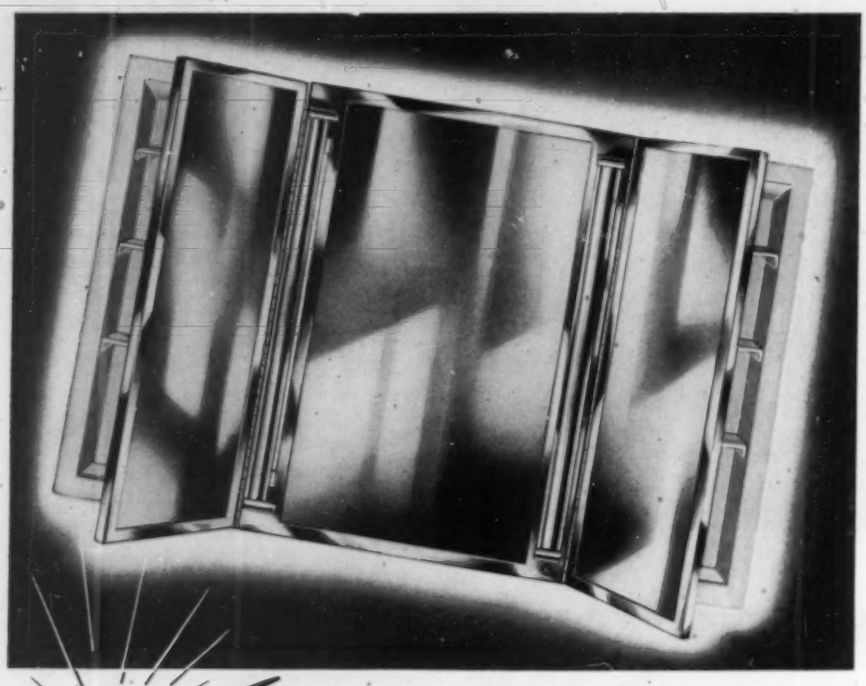
Cameras, Lighting, Electrical System

Introduction of the new image-orthicon TV camera recently has changed many studio requirements. The old iconoscope camera demanded much higher levels of studio illumination. At the same time, lighting units themselves have been undergoing change. Current good practice employs a mixture of fluorescent and incandescent lamps in fixtures suspended from a pipe grid which is hung from the studio ceiling; the proportion of each type is the subject of divergent opinions and must be determined for each job. In addition, some portable lamps on standards are used to give roundness to the televised subject. Fixtures are preferably adjustable in direction and height, and although dimmers have not been common, they are included in many recent installations. There is a growing practice of concentrating all responsibility for lighting in one individual, which means some method of remote control for the fixtures. This introduces complex lighting switching; and while some studios have installed catwalks at the level of the ceiling fixtures for manually adjusting lights, in others this is done from ladders. Some lights are adjusted by means of pulleys and cables; sometimes there is a wall-mounted pinrail to which the cables or ropes run. In a TV studio there is no chance to adjust lighting during the performance as there is on the movie stage; once set, the lighting stays. The lighting pipe grid is usually designed to carry 40 lbs. per square ft. of floor area; special tracks, monorails, etc., have also been used, although the need to cut costs may rule these out. Structurally, the ceiling must be capable of supporting the weight of the grid plus weight of fixtures.

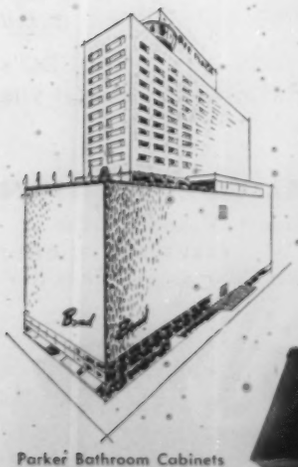
To permit utmost flexibility of lighting, a great number of wall receptacles is essential. Three-outlet units ten ft. apart, entirely around the room, are recommended. One authority recommends two rows, one about 2 ft. above the floor, the other slightly below ceiling fixture level; another suggests a single row about 5 ft. above the floor. The studio power load is in the neighborhood of 15 to 25 watts per square ft. of staging area.

Camera cables have to maintain a constant length, so camera plug-ins are often concentrated in one spot, directly under the control room window where they cannot be blocked by scenery. In large studios several locations may be needed. In the control room, wiring may be carried in floor trenches; the same is true of movie-projector units in the film room. Future expansion must be

(Continued on page 180)



Your own ideas polished up!



Parker Bathroom Cabinets and Accessories were used throughout Cincinnati's new Terrace Plaza Hotel.

IT WILL SURPRISE YOU how well your own ideas have been polished up—and how completely they have been incorporated in the designs of the whole Parker Line of bathroom cabinets and accessories. Years of experience have developed Parker's ability to see eye-to-eye with architects in style and utility . . . just as working with builders has influenced Parker's strict standards of materials and workmanship to meet extreme usage requirements. See the complete line in Sweet's, or send for the new Parker Catalog. The Charles Parker Company, Meriden, Connecticut.

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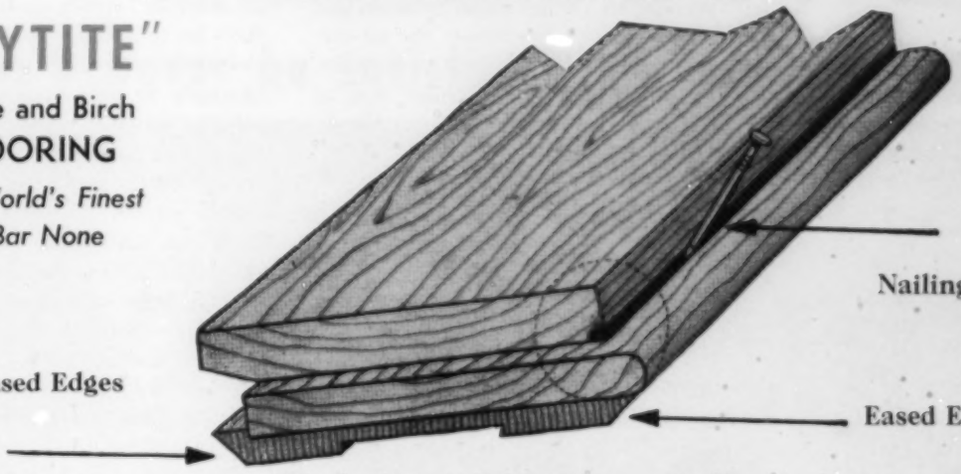

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 (*Continued from page 178*)

considered when such permanent installations are made.

Air Conditioning and Sound Control

Air conditioning remains important to TV studios even with the reductions in light levels made possible by the new cameras. However, the only problems peculiar to TV are sound isolation and air distribution in studios. The air system creates noise or vibration in ducts, at supply and return grilles, and at pumps, compressors or fans. All reciprocating or rotating machinery should be sound-isolated; flexible connections are desirable between ducts and blowers; ducts are invariably lined with sound-absorbent material and often subdivided internally to reduce noise. Air is distributed at low velocity to eliminate hissing and ducts are oversized, careful attention being paid to design of turning vanes, corners, dampers, etc. Where ducts pass through the structure they are well isolated to prevent noise transmission. In the studio, the portion of the space above lighting fixture level is often not conditioned; directional supply outlets are located below the fixtures. If they did not interfere with mobility and direction of lights, it would be ideal to employ centrally located air supply grilles, but this is so difficult that high wall locations are more common. Return grilles near the floor may be blocked by scenery; nevertheless both floor-level and high-wall returns are used.

In discussing studio design some of the sound control problems have been covered: sound locks, sound-isolating corridors, etc. In the studio the ambient noise level is higher than a radio studio would tolerate, due to sounds from moving scenery, cameras, etc., and to movement and control of personnel. Directional microphones have been developed to cope with this, but it is also advisable to have the studio acoustically as dead as possible. Common practice is to line the entire walls with mineral wool blanket; sometimes alternating panels of live and dead materials are used, but sets, equipment, etc., negate such acoustic refinement. A sensible precaution is to protect the acoustic surfacing with a dado of perforated asbestos board, or at least a handrail. The floor is necessarily acoustically live. Control rooms are acoustically treated, usually to make them as completely dead as possible, sometimes to attempt reproduction of "living room" conditions — but not all TV receivers are in living rooms. Control room and sponsor's booth entrances should have sound locks.

Other equipment problems, such as placing the microphones so they will not cast shadows on the hero's face or the sponsor's product, are not strictly architectural. Nevertheless, the TV operator is so anxious to find solutions that the architect with an idea will find a ready audience.

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Marlite, the modern plastic-finished wall and ceiling panel, coordinates with other building materials now being used in modular construction . . . to help offer your clients big savings in building costs.

Large, wall-size Marlite panels come in multiples of the standard 4" measurement . . . ranging from 4′ x 4′ up to 4′ x 12′. With beautiful Marlite, you can design luxurious interiors with the 4-ft. plan grid. And the wide range of Marlite patterns and colors makes possible striking, distinctive interiors in homes, stores, theatres, specialty shops, hotels and a host of other installations.

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office building McKim provided (it was originally thought to be a temporary structure) was enlarged to twice its size by President Taft, and that was tripled again by Presidents Hoover and Franklin D. Roosevelt. The Roosevelt expansion, designed by Eric Gugler, was forced underground by an outcry against further enlargement of the office wing at the expense of the White House design as a whole. A $1,600,000 office extension plan advanced by President Truman in 1946 encountered the same opposition and died.

The program for the White House reconstruction today thus writes itself in history and precedent. Fixed national policy, energetically defended by the A.I.A. and other interested civic groups, stands firm against any overblown office development here. The demands of official entertaining absorb the main floor of the White House, and service functions the basement and attic. That leaves the second floor for the President and his family. What they will get from the present alterations will be a compact, efficient, apartment-type of flat, in which plan some of the historic rooms and their fittings will be preserved. The cabinet room, and the room where Lincoln signed the Emancipation Proclamation would probably be saved, and the oval study as well. There may be some possibilities for providing more living space — a roof garden is among them — but in general the living quarters for the President and his family will have to be accommodated on one floor within the 85 by 170 ft. area of the building. Beyond that one must consider the various proposals that have from time to time been advanced for a "second White House," a suburban or country place up the Potomac toward the mountains but within easy reach of the Capital that would serve the President in relation to the White House somewhat like Chequers in relation to 10 Downing Street.

Now about the $5,000,000. As Lorenzo S. Winslow, architect of the White House, has pointed out, who knows? It might cost $8,000,000. Or it might be less. The work that has to be done can only be approximated, even in the stripped state of the building today. It is a kind of architectural dentistry, a beam-by-beam replacement of virtually the entire structure, a completely new mechanical installation, and then a restoration of the appearance of the building as it was before the work commenced. An expensive, uncertain job, to be done on force account — and one that will take an equally uncertain length of time.

Every president has had his hand in some remodeling of the White House, and for 150 years it has been the battleground between the temporary interest of the tenant who wants to make himself at home there for a limited period of time, and the people of the United States who have a continuing interest in the building regardless of its occupant. Whatever solution is arrived at, it is good only until the next administration. To be valid, plans for such a building should provide for flexibility and choice. But neither the political nor the architectural means exist to create a situation in which flexibility and choice are possible. Perhaps making the building a national monument and putting it under the exclusive jurisdiction of the Park Service would help. But until something like that is done, one may confidently expect that the White House will present its bill for remodeling every so often, and the nation should count itself lucky to pay the price.

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Infra's multiple separated aluminum sheets provide 4 reflective spaces and 4 reflective surfaces, each non-condensation-forming. Two sheets of aluminum and the accordion partition block convection currents. Infra's triangular reflective air spaces and small mass eliminate conduction as a problem.

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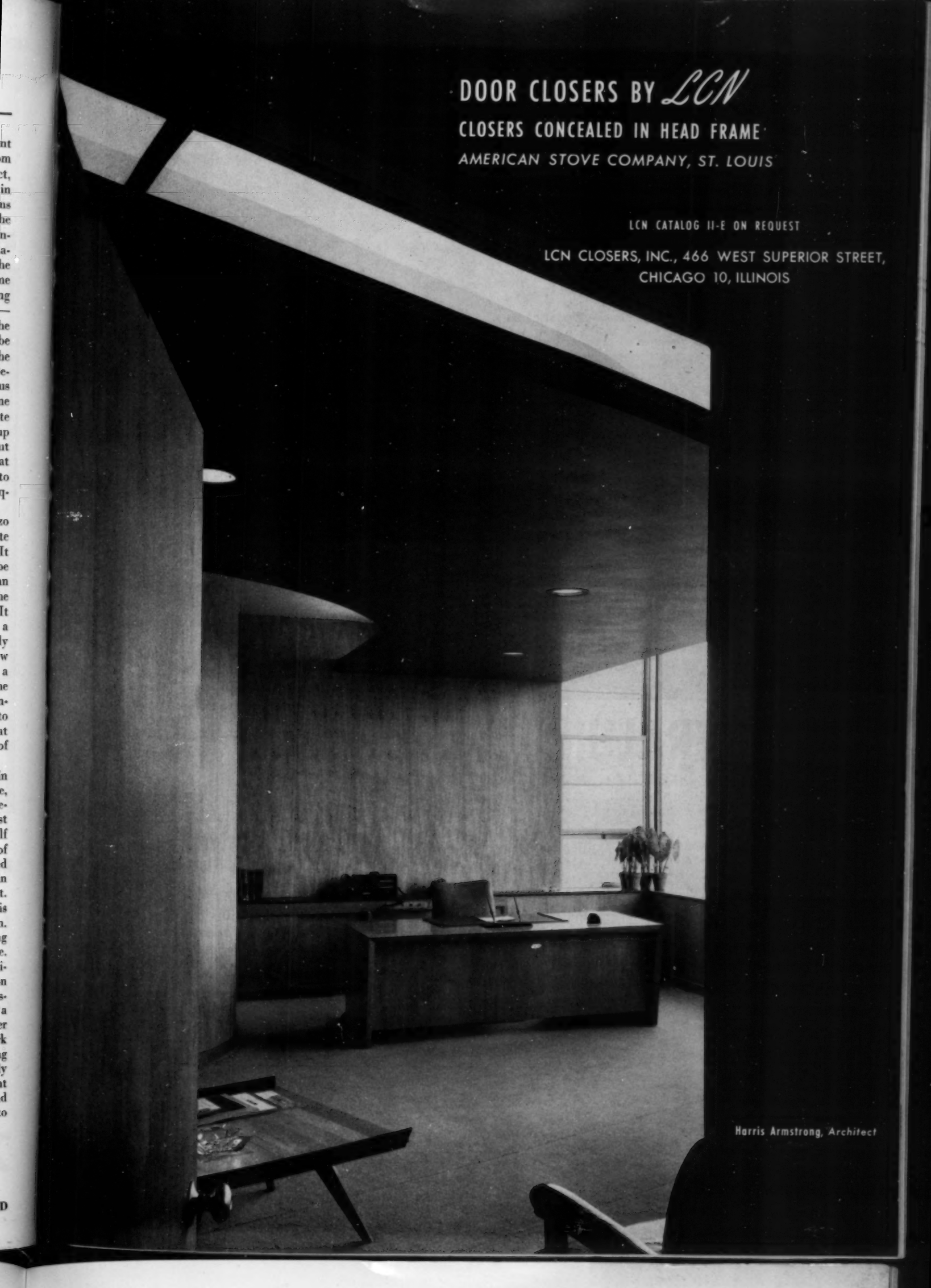
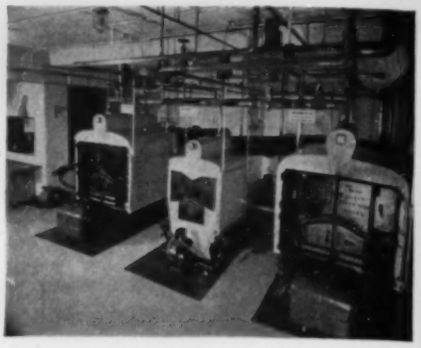

DOOR CLOSERS BY LCN
CLOSERS CONCEALED IN HEAD FRAME
AMERICAN STOVE COMPANY, ST. LOUIS
LCN CATALOG 11-E ON REQUEST
LCN CLOSERS, INC., 466 WEST SUPERIOR STREET,
CHICAGO 10, ILLINOIS
Harris Armstrong, Architect

(*Continued from page 148*)

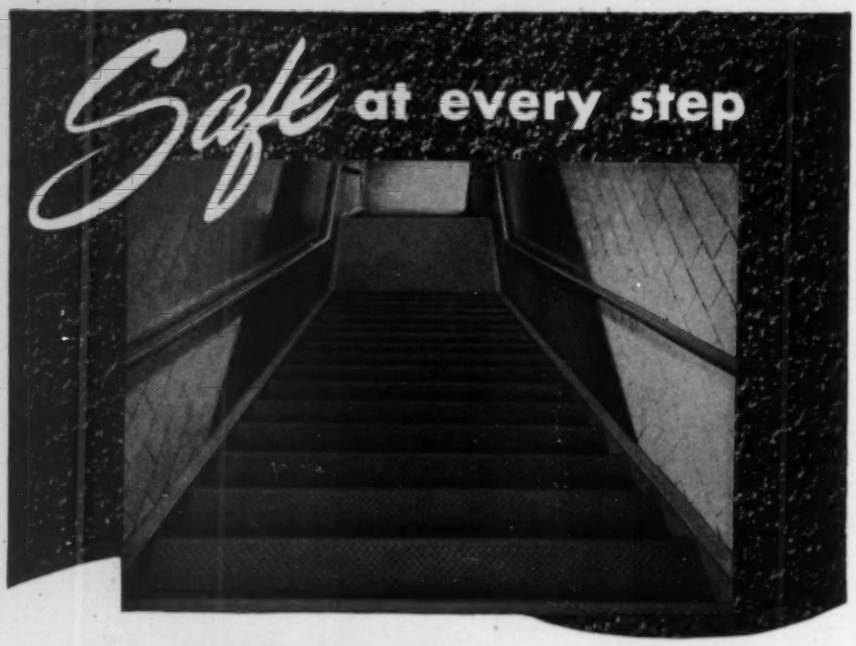
In the main living quarters each room is controlled by its own thermostat. The control in the servants quarters is an outside bulb and inside water temperature control that maintains a very even temperature throughout the apartment.

In the swimming pool, in conjunction with the radiant heating system, there is a fresh air ventilating system which is controlled by the percentage of humidity in the pool room or in the loft space above the pool ceiling.

The entire project is oil fired. And in addition to the heating, there are snow melting coils used at the front and rear entrances as well as the roof over the swimming pool. Architects were Berninger, Haag and D'Entremont of Jenkintown, Pa.; heating engineer was George A. Heath, Mechanicsburg, Pa. The H. B. Smith Co., 62 Main St., Westfield, Mass.



These are just three of six boilers used to heat rooms, swimming pool water and domestic water of a Bloomsburg, Pa. home



WITH FERALUN SAFETY TREADS

Workmen at the Curtiss Wright Plant, Propeller Division, Caldwell, N. J., go up and down these stairs . . . safe at every step.

Their shoe soles come to grips with non-slip Feralun Safety Stair Treads, cast iron, with wear-resistant abrasive embedded right in the walking surface.

Heavy traffic day in, day out — — but Feralun Safety Treads, built to take hard use, stay non-slip . . . last and last.

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City..... State.....

LIGHTWEIGHT AGGREGATE

The lightweight aggregate, perlite, will soon be processed in a new plant being built by the Great Lakes Carbon Corp. in Linden, N. J. It has been produced for several years under the name of *Permalite* in this company's plant at Torrance, Calif., and now operations are being extended to supply the East.

This aggregate is made by expanding perlite, a volcanic rock, at a temperature of approximately 1900F. Permalite varies in density from 5 to 15 lb. per cu. ft., depending upon the end use. Significant advantages claimed for the aggregate are: (1) it is lightweight, (2) it has excellent insulating properties (thermal and acoustic), (3) it has unusual fireproofing qualities, (4) it does not have an affinity for water. The lightweight advantage is said not only to result in reduction of dead load, but also in improved workmanship.

Aggregates are made for plaster and for insulating and fireproofing concrete. The concrete is not a structural type, however, developing a 28-day compressive strength of 400–1000 psi. The manufacturer reports that the lightweight plaster weighs on an average 58% less than sanded plaster.

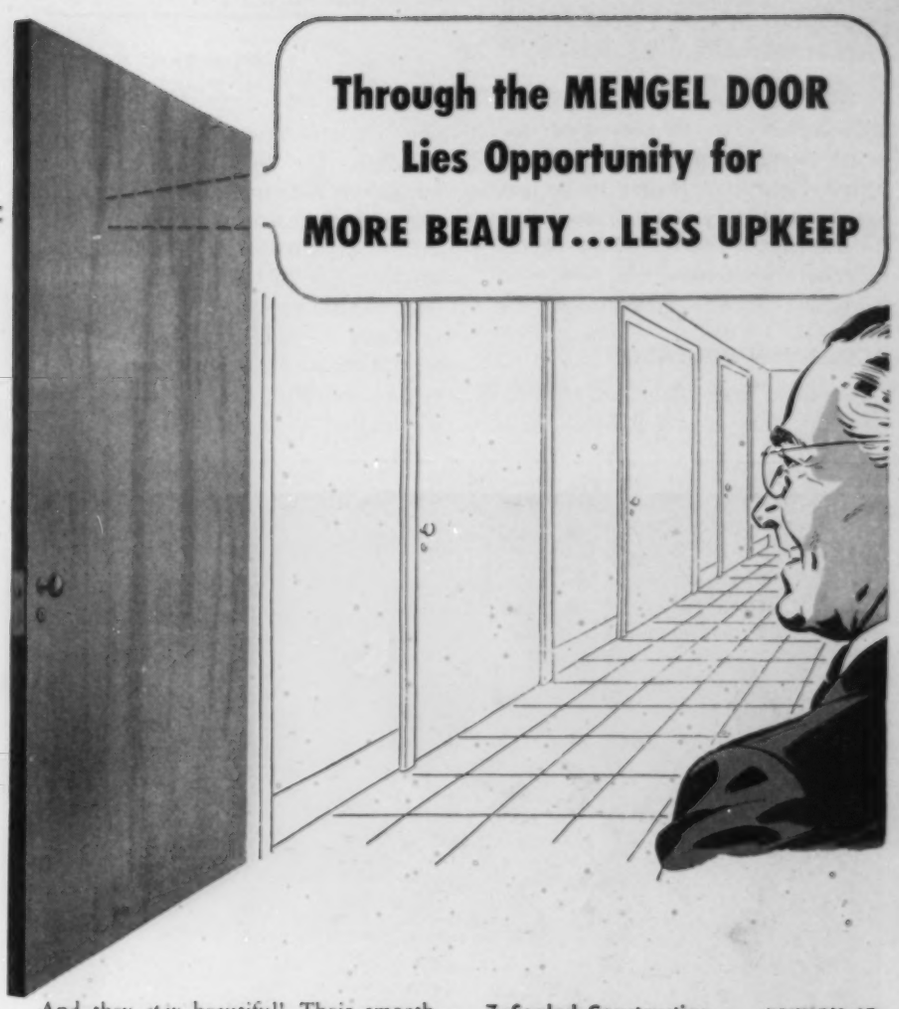
Permalite plaster aggregate has already been used extensively on the West Coast, in Texas and in the Chicago area. Great Lakes Carbon Corp., 18 E. 48th St., New York 17, N. Y.

LIGHT SWITCH

An electric light switch now available is designed to solve the problem of turning on lights in a darkened room. It is equipped with a transparent nylon handle containing a tiny neon light which automatically goes on when the room lights are turned off.

(*Continued on page 186*)

Through the MENGEL DOOR Lies Opportunity for MORE BEAUTY...LESS UPKEEP



The Original Mengel Flush Door with the Patented "INSULOK" GRID CORE →

IT'S more than just a beautiful door! It's an approved way of building durability and utility into any interior . . . regardless of period and decorative scheme.

For Mengel Flush Doors are engineered and built by skilled craftsmen to give *beauty with a purpose* . . . beauty with fingertip lightness, long, trouble-free life, easy upkeep.

Only the Mengel Flush Door has the patented "Insulok" Grid Core. Made of sturdy insulation board strips halved together, it ends expansion and contraction headaches . . . makes Mengel Flush Doors much lighter than standard panel hardwood doors.

Built Like Fine Furniture! Framing is hard, even-textured poplar. Corner connections have dovetailed lock-joints, securely wedged, to give dimensional stability and seal moisture out. And the 3-ply faces are permanently bonded to frame and core.

No wonder Mengel Doors stand a 25,000-slam test. And every door is *"cured"* before it leaves the factory to assure warp resistance.

Mengel Flush Doors come faced with beautiful veneers of *Birch, Mahogany, Oak, Walnut, Gumwood* (and other hardwoods to order).

And they *stay* beautiful! Their smooth, unbroken surfaces are easy to clean . . . offer no place for dust to cling. No panels to shrink . . . no moldings to come apart.

Easy to Paint! The smooth Gumwood door is perfect for painting . . . never shows a grain raise.

For new construction or remodeling, specify Mengel Flush Doors . . . the doors with years of performance behind them. For full information mail the coupon *today!*

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1. **An Engineered Door** . . . with patented "Insulok" Grid Core, hardwood frames and faces, and dovetailed lock-joints.
2. **3-Ply Faces Bonded to Core** . . . with moisture-resistant resin glue by hot-press method.
3. **40% Lighter in Weight** . . . than standard panel hardwood doors.
4. **Warp-Resistant** . . . "cured" before leaving factory.
5. **Slam Tested** . . . 25,000 times by powerful machine.
6. **Flame-Resistant Core** . . . made of 3/8" insulation board.
7. **Sealed Construction** . . . prevents entrance of dirt, vermin or moisture.
8. **Over-sized Lock Block** . . . centered on edge of stile, permits reversing door.

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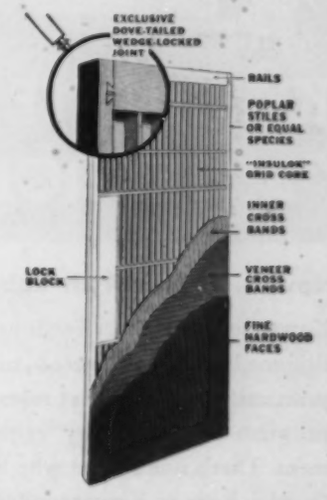

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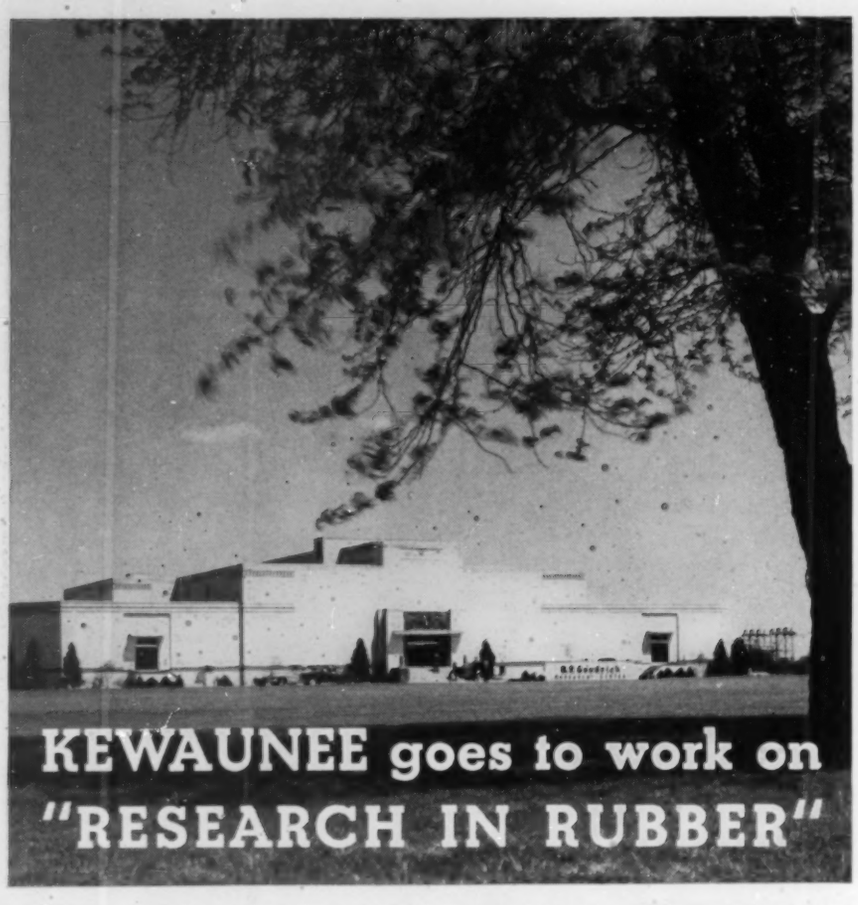
City . . . . Zone . . . State .....

(*Continued from page 184*)

Glo-Switch fits the standard wall switch receptacle, and is installed easily with a screwdriver. It operates on leakage normal to any switch, according to the manufacturer, and is said to operate for about three cents a year. Glo-Switch Corp., 30 Church St., New York 7, N. Y.

ACCORDION INSULATION

Accordion type, aluminum reflective insulation, manufactured by *Infra*, is now available in a strengthened construction. The two aluminum sheets forming the reflective layers now come to the edges of the flanges of the insulation, so that when it is stapled in place, the staples pierce the two layers of aluminum as well as one of fiber. This has been done to eliminate the possibility of separation of aluminum and fiber layers. According to the manufacturer, this insures that the insulation will remain in place for the life of the building and provides continued "compartmentation" of the accordion-type insulation. Infra Insulation, Inc., 10 Murray St., New York, N. Y.



New B. F. Goodrich Laboratory is Kewaunee Equipped

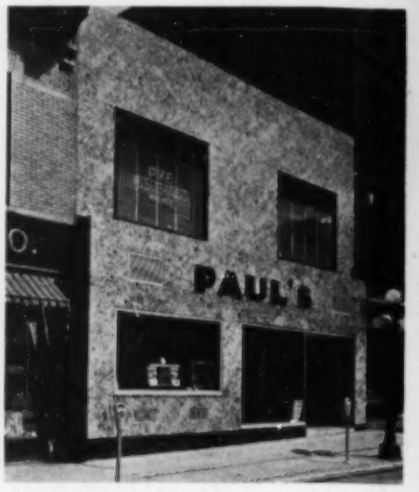
Kewaunee Laboratory Furniture is designed and engineered to fit practically any industrial research program or laboratory requirement. That's one reason why B. F. Goodrich chose Kewaunee for its new Research Center at Brecksville, Ohio.

The new Kewaunee metal units are heavier and sturdier than ever, with new, huskier door and drawer suspension. Metal surfaces are Bonderized. Working surfaces are Kewaunee's KemROCK — resistant to acids, alkalies, solvents, and ordinary physical shock.

Through and through, Kewaunee is custom quality — at ready-made prices. Write for full details. No obligation.

Kewaunee Mfg. Co.
C. G. Campbell, *President*
5046 S. Center St., Adrian, Michigan

Representatives in Principal Cities



Marble front of the store shown was set with plastic adhesive instead of anchors

MARBLE SET WITH ADHESIVE

Marble is being placed in line with other building materials and equipment in an endeavor to reduce building costs through use of a plastic adhesive for setting the material.

The Marble Institute of America describes this "plasticized synthetic resin bonding cement" as a black (or dark) material, impervious to moisture; not affected by normal heat or cold; adhering with a strong suction to all clean surfaces without sagging; setting to a stiff plastic state, capable of absorbing moderate shock or settlement; not bleeding through $\frac{7}{8}$ in. marble.

Damage to wall backing and spoilage are said to be eliminated since normally no anchors are necessary in setting marble 2 in. or less in thickness with the adhesive. According to the Marble Institute, it is especially desirable where setting space is tight or at points where anchoring is difficult.

The Marble Institute points out that the marble industry has not shifted suddenly from conventional practice, many contractors preferring the plaster of Paris "spots" method. But they say that many firms have found labor and material costs to be less by the new method.

Tests have shown that the plastic adhesive holds up under rugged tests. In one test, three slabs $2\frac{1}{2}$ ft. wide by $5\frac{1}{2}$ ft. high, which set two days before

(*Continued on page 188*)

It's easy to install coils in a Climate Changer. Workmen here are slipping a standard 2-row, Type C Heating Coil into place.

Extra room for extra coils to meet your future needs

An engineer recently remarked that, "one of the best advantages Trane has in Climate Changers is that there's always room in them for more coils."

Maximum coil capacity of a standard Climate Changer is ten rows of tubes. Usually only a 1- or a 2-row heating coil is needed, with a 6-row cooling coil—so actually there usually is "room for more coils." Also, the scheme of "heating coils now—cooling coils later" is popular.

That extra space for extra coils to meet your future needs is always good job insurance. It saves dollars, and it saves headaches.

Having the right extra spaces in the most important places is typical of many features that have been engineered into this husky, heavy-duty air conditioner.

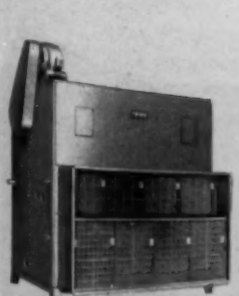
We sincerely believe the Climate Changer is not only the most flexible, most versatile air conditioning unit built, but also that it will last longer with less care and attention than any other similar device.

Ask the Trane sales office in your area to show you how Climate Changers are being used to meet heating, ventilating and air conditioning needs, for comfort or process work—domestic, commercial, industrial. Sales office Weather Magic files contain an impressive number of case histories.

THE TRANE COMPANY . . . LA CROSSE, WIS.

Manufacturing Engineers of Heating, Ventilating and Air Conditioning Equipment—Unit Heaters, Convector-radiators, Heating and Cooling Coils, Fans, Compressors, Air Conditioners, Unit Ventilators, Special Heat Exchange Equipment, Steam and Hot Water Heating Specialties . . . IN CANADA, TRANE COMPANY OF CANADA, LTD., TORONTO.

An endless variety of sizes and styles of Climate Changers, vertical (1) and horizontal (2); along with Evaporative Condensers (3); Compressor Units (4); and Turbo-vacuum Compressors (5); are typical of the broad Trane line.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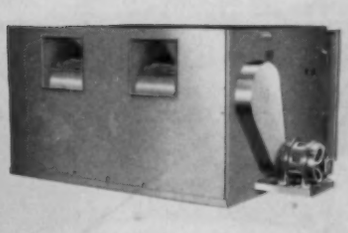
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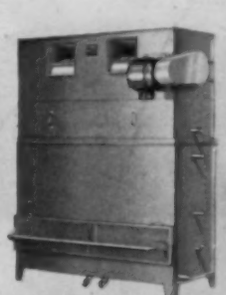
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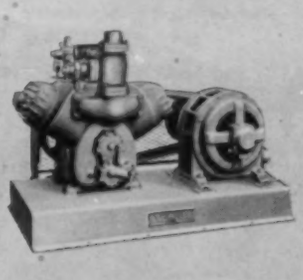
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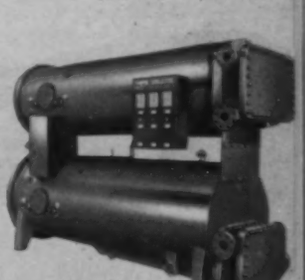

5

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 186*)

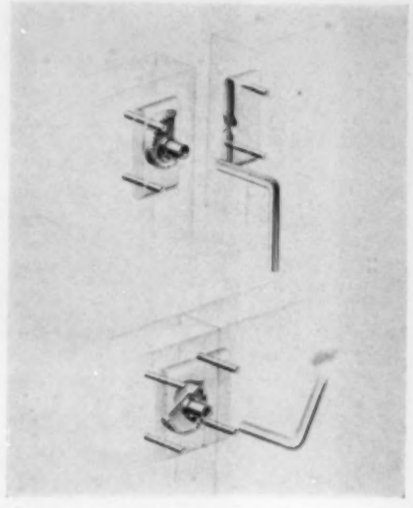
being subjected to a load, did not come loose until a load of 216 lb. (average) was applied. After 30 days it took 336 lbs. Marble Institute of America, Inc., 108 Forster Ave., Mount Vernon, N. Y.

PANEL FASTENER

A butt-joint panel fastener, recently developed, is now being used extensively in conjunction with honeycomb or other sandwich-type materials, as well as plywood, fiber board and other sheet materials to form movable partitions, portable shelters and demountable boxes.

The principal feature of the *Roto-Lock* is its tapered cam design — no spring or delicate mechanical parts are used. The design of the fastener is such that it can be used to attach vertical to horizontal panels, or to attach panels edge-to-edge.

The manufacturer lists operational features as follows: (1) the lock will draw panels together at sufficient pressure to establish an air- and water-tight seal, and will carry a 1400 lb. tension load as well as heavy shear loads; (2) it will fasten in misaligned conditions in all directions, and will lock panels in a semi-open position if there is an obstruction between them; (3) it recesses completely into the panels or for applications to thin sheets it may be side-mounted; (4) the cam may be actuated by a hex wrench, screwdriver or any other hand tool; (5) the assembly consists of no through parts to permit transmittal of heat or cold from exterior to interior surface. Simmons Fastener Corp., Albany, N. Y.



Turning a hex wrench moves a tapered cam of this panel fastener, which locks it

GLARE-CONTROL LENSES

The problem of brightness control with artificial lighting has received considerable attention in recent years and has resulted in a variety of methods to reduce glare. At the recent lighting show in Chicago the Holophane Co. introduced a series of lenses said to have built-in glare control, directing light rays away from the occupants' eyes toward the work.

The lenses, available in flat or dished shapes, are designed to be used with fluorescent lamps. When the dished lenses are used, some light goes directly to the ceiling to reduce contrast between the lens and background. One curved type is built in a 10⅞ in. width so as to fit acoustical ceiling constructions. This same lens slopes back to the ceiling at the end of a run so that no metal end pieces are needed. Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y.

(*Continued on page 190*)

The Barcol OVERdoor
This large door on a municipal building, used for an exit by heavy road machines, is *hand-operated* — demonstrating the easy-working quality of the Barcol OVERdoor even in big sizes.

Easy-Working!

The simplest and surest way to tell how well the Barcol OVERdoor works is . . . *work it.* Raise it . . . lower it. Note the roller-bearing glide of the sections . . . upward and downward. *No other overhead door works any easier!*

SEE OUR CATALOG IN SWEET'S

Weathertight!

To keep out weather, a door must close snugly . . . and a really snug door *won't rattle.* So . . . take hold of the handle on that same door that closed so easily . . . and try to rattle it. You can't . . . because the *exclusive closing action* of the Barcol OVERdoor insures all-around weathertightness . . . *and* easy operation!

FACTORY-TRAINED SALES and SERVICE REPRESENTATIVES in PRINCIPAL CITIES

BARBER-COLMAN COMPANY
102 MILL ST. • ROCKFORD, ILLINOIS

Nothing *is a problem...*
to the amazing new

CUSHIONLOK by Bigelow

Time *is no problem*

This revolutionary new commercial carpet, with its built-in rubber cushion, requires no time-taking workroom preparation.

Cushionlok cements directly to concrete, wood, or plywood floors. (Seams are almost invisible.) Can be walked on immediately!

Disruption *is no problem*

Your *Cushionlok* installation can be accomplished neatly as well as speedily.

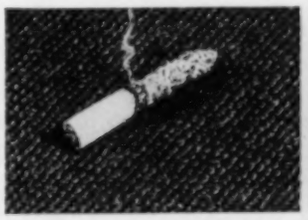
Because Cushionlok is made in 27" width, only one section of floor is tied up at a time. Fixtures and furniture need only be shifted aside; business can go on as usual!

Even **Cigarette Burns** *are no problem*

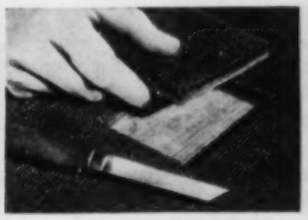
Cushionlok's springy wool surface is so handsome you hate to think of the inevitable cigarette scars.

But when you *do* get a cigarette burn, you needn't worry.

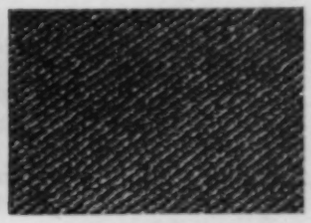
Because here's another *Cushionlok* miracle that will make the scar disappear like magic:



1. Dropped cigarette smolders unsightly mark in Cushionlok installation. (With ordinary carpet this would be a real tragedy.)



2. Simple cutting operation removes marred section. (Experts can complete repair in 5 minutes.)



3. New, small patch of *Cushionlok* is cemented into place; only an expert could spot the substitution; installation looks flawless.

Plan your Cushionlok installation now! You'll find Cushionlok's special features—its smart looped surface, its built-in rubber base—ideal for your commercial installation. Adds luxury underfoot; adds years of wear, yet costs very little more than ordinary carpeting.

Inquire of your architect or decorator, or call Bigelow's Carpet Counsel direct. One of the 25 offices is near you.

SINCE 1825
BIGELOW
Rugs – Carpets

Bigelow
Rugs and Carpets

Beauty you can see... quality you can trust... since 1825

ARCHITECTURAL ENGINEERING

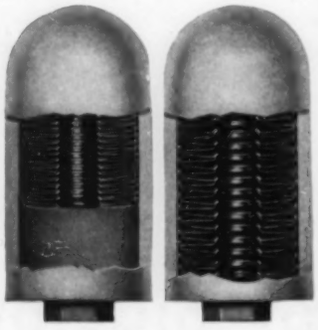
TECHNICAL NEWS AND RESEARCH

(*Continued from page 188*)

CORK FLOOR COVERING

Research to develop a flooring that would combine the recognized advantages of cork and a tough plastic resin have resulted in *Dodge Vinyl-Cork Flooring*, now available in a variety of colors and tile sizes. Results of tests reported by the manufacturer are: (1) it is extremely safe to walk on, having a high coefficient of friction when dry, and an even higher one when wet; (2) it is quiet to walk on; (3) it doesn't warp, expand or contract with changes in temperature and humidity; (4) it is long wearing; (5) inks, greases, acids and mild alkalis will not mar the surface; (6) it is fire-resistant; (7) has high insulating properties; (8) colors are fade proof; (9) chairs, heavy furniture will not leave permanent marks; (10) it is water-repellent.

The flooring is being made in 21 plain and marbleized combinations of seven basic colors. Tile comes in squares of 6, 9 and 12 in. and in ⅛, 3/16 and ¼ in. thicknesses. Dodge Cork Co., Inc., Lancaster, Pa.



Metal bellows expands, contracts to prevent damaging effects of water hammer

WATER HAMMER ARRESTING DEVICE

Described as a device designed to eliminate the damaging effects of water hammer in industrial or domestic applications, *ShokStop* is a metal bellows which allows free contraction and expansion of the air sealed within it but prevents all contact between air and water.

Advantages claimed for ShokStop include ease of installation and elimination of all maintenance or servicing. It is designed to eliminate the need for capped pipe air chambers which are said to become water-logged and inoperative, and to require frequent maintenance even when provided with valves or petcocks for drainage. Wade Mfg. Co., Elgin, Ill.

JOINT FILLER

Kork-Pak is a resilient, pre-molded joint filler for use between the concrete floor slab and footings of basementless houses and other buildings where a concrete slab is on grade. Used here, it is said to keep the joint filled effectively and to act as an efficient insulating material, preventing heat loss from the slab out through the footings.

The filler is made of cork granules, bonded together with asphalt, between two layers of asphalt-saturated paper. Kork-Pak is claimed to keep the joint between the slab and footings filled through repeated expansion and contraction cycles, and in addition to exclude moisture and vapor.

The material is supplied in ¼, ⅜, ½, ¾ and 1 in. thicknesses, in widths up to

(*Continued on page 192*)

No other manufacturer makes a shingle like this!

Here are exclusive Architect shingle features . . . features designed by Bird & Son to give this luxurious shingle greater rigidity, greater thickness and longer life:

Thick massive butts . . . approximating wood or slate shingles in caliper . . . heavy rich shadowlines.

Weight 290 pounds per square . . . a perfect balance of heavier asphalt coating and greater saturation.

Triple coverage, 5" headlap . . . longer life and extra protection against standing snow, driving wind and rains.

Greater rigidity . . . heavier felt base, more asphalt, and larger mineral granules.

Surfaced with coarse mineral granules . . . rich color and new distinction . . . better adhesion and longer surface protection.

Cost of the Architect is in the *asphalt shingle price range* . . . extra value for every building budget.

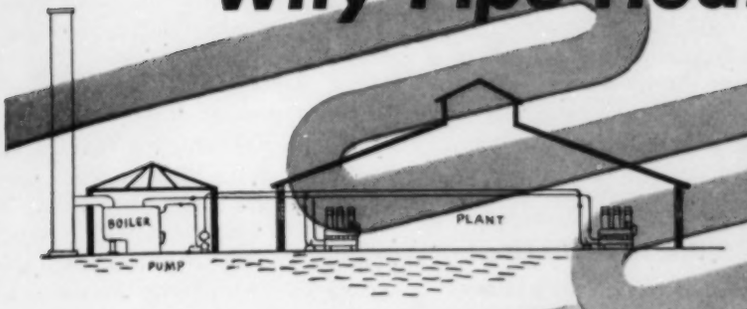
Write us today for folder showing the wide variety of colors and blendes. Bird & Son, inc., 15 High St., East Walpole, Mass.

For similar features in a fine granule shingle, write our Chicago office about #27 Master-Bilts, Dept. AR-2, 1472 W 76th St., Chicago 20, Ill.

BIRD & SON inc. Established 1795

East Walpole, Mass.

Why Pipe Heat All Over?



DRAVO *Counterflo* HEATERS

make it where it's used . . .

Why waste cash on costly distribution systems to pipe heat all over your plant? Dravo *Counterflo* Heaters *make* it right where it's *used,* blanket working areas of 4,000 to 20,000 sq. ft. per unit with production-stimulating warm air.

Counterflo Heaters also provide ventilating air in summer. 100-150-foot air throw; no ducts needed for large open areas. Oil or gas-fired, readily converted. Reported total installed cost 50 to 66% less than wet-type systems. 80-85% efficiency. Only power, fuel and vent connections required for installation. Stainless steel combustion chamber, rugged mill-type construction, AGA approved and UL listed. Ask for Bulletin DF-523-46

DRAVO
CORPORATION
DRAVO BUILDING, PITTSBURGH 22, PA.

Dravo also manufactures the *DRAVO CRANE CAB COOLER* for air conditioning hot-metal crane cabs.

PITTSBURGH • CLEVELAND • PHILADELPHIA • DETROIT • NEW YORK • CHICAGO • ATLANTA • BOSTON

Sales Representatives in Principal Cities. Mfd. and Sold in Canada by Marine Industries, Ltd., Sorel, Quebec.

DRAVO

(*Continued from page 190*)

36 in. and in any length desired.—Servicised Products Corp., 6051 W. 65th St., Chicago, Ill.

INDIRECT LUMINAIRE

The *Seelex Luminaire*, designed for use with silver bowl lamps, has louvers of spun aluminum with a fine emery-grained finish. The silver bowl lamp used in this indirect luminaire contains the major reflector, and the fixture can be restored to original efficiency merely by a lamp change. Open louvers are said to eliminate the critical maintenance problems usually involved with indirect fixtures. Edwin F. Guth Co., 2615 Washington Blvd., St. Louis 3, Mo.

VITREOUS CHINA LAVATORIES

A new line of vitreous china lavatories comes in two types — one with a modern shelf at the back (supply fittings are mounted on the back face of the bowl) and the other with a convenient ledge at the back on which the supply fitting is mounted.

Each lavatory has a dual front overflow which gets rid of the bulge often found at the front of bowls. Extra room is provided at the back for connecting the water supply.

Other features include: wide anti-splash rim, no-slip towel bars which attach on the sides, positive drain control and large capacity. Briggs Mfg. Co., Detroit 11, Mich.

3 GYMS IN ONE

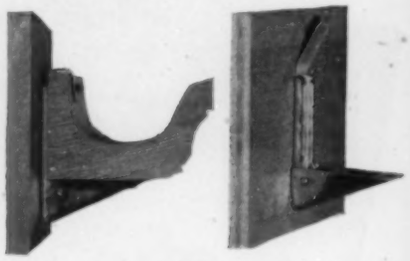
From Coast to Coast the HORN FOLDING BLEACHERS AND HORN FOLDING PARTITIONS are making one Gym do the job of three. With emphasis on careful planning Horn offers a "tested" solution to gym problems.

HORN FOLDING BLEACHERS-HORN FOLDING PARTITIONS

HORN, with years of experience and skill, offers to every school planner the services of the Horn Engineering Department. Horn installations are guaranteed.

WRITE FOR COMPLETE DETAILS AND LITERATURE.
THERE IS NO OBLIGATION.

HORN BROTHERS CO.
A DIVISION OF HORN INDUSTRIES
FORT DODGE, IOWA — Horn — ESTABLISHED 1909



Gutter brackets of aluminum allow space for overflow between gutter and house

ALUMINUM GUTTER BRACKET

Aluminum brackets are now available designed not only to support wooden gutters, but also to allow space for overflow between the gutter and the house, and thus are said to protect wooden gutters and facia boards from rotting.

Unico brackets, built of aluminum channels permanently riveted together, are attached with screws and spaced 5 to 6 ft. apart. Unico, Huntington, Long Island, N. Y.

ADJUSTABLE DRAFTING CHAIR

Incorporated into *Tru-Posture Chairs* is an instantaneous adjustment feature by which 7-in. height adjustments can be made by a light pull upward on the seats. The backrests may be raised or lowered, pushed forward or backward, or regulated to any degree of tension desired.

The chairs are of electrically welded steel construction, upholstered in attractive Vinyl-coated leatherette. Models are available with seat heights starting at 17, 20, 22, 24 and 27 in. Dependable Mfg. Co., Omaha, Nebr.

PAINT FOR GALVANIZED METAL

Galvanized metal surfaces which have heretofore required weathering or chemical treatment before paint could be applied with a successful bond can be fin-

(*Continued on page 194*)

AMERICAN-Standard

First in heating...first in plumbing

Architects: Kaiser, Neal and Reid, Pittsburgh, Pa.
General Contractor: John McShain, Inc., Philadelphia, Pa.
Heating and Plumbing Contractor: Standard Engineering Co. Washington, D. C.
Wholesale Distributor: Hajoca Corp., Arlington, Va.

Georgetown University Hospital selects AMERICAN-Standard

■ Another large new hospital joins the impressive, growing group of institutions selecting American-Standard.

But Georgetown University Hospital's choice of these nationally famous products is not unusual. For no manufacturer offers a wider variety of heating equipment and plumbing fixtures. And none makes a better product.

Yes, when you select or recommend American-Standard you can be sure they will give lasting client satisfaction . . . in efficient performance, economical service . . . and easy, low-cost maintenance. Your Heating and Plumbing Contractor will be glad to furnish full information about the complete American-Standard line. **American Radiator & Standard Sanitary Corporation,** P. O. Box 1226, Pittsburgh 30, Pa.

This Autopsy Room in the new Georgetown University Hospital includes genuine vitreous china **ALL-SERVICE SINK** with drain shelf and knee-action mixing valve. **AUTOPSY TABLE** is made of acid-resisting enameled cast iron and has two slab drains, intergral sink basin. **ARCO MULTIFIN CONVECTOR,** at right, heats air as it passes between the convector's light, non-ferrous fins. With an **AMERICAN ENCLOSURE,** it makes an attractive, space-saving installation.

A Utility Room in the new Georgetown University Hospital featuring **SERVICE SINK** of sturdy cast iron, finished with acid-resisting enamel. Also shown is **CLINIC SERVICE SINK** of genuine vitreous china with quiet, thorough syphon jet flushing action.

Look for this AMERICAN-Standard HEATING-PLUMBING *Mark of Merit*

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 192*)

ished immediately with a new paint called *Quon-Kote*. This new paint is specially compounded with a linseed oil base to react chemically with zinc on new galvanized surfaces, forming a tightly bonded coat without the need of a primer. It is made in white, cream, red, green and gray shades by Sherwin-Williams for the Great Lakes Steel Corp., manufacturer of Quonset structures, and is available through their local representatives. Great Lakes Steel Corp., Stran-Steel Div., 3750 Penobscot Bldg., Detroit 26, Mich.

SUBFLOORING INSTALLED WITH ADHESIVE

Plank subbase can be cemented directly to concrete with a special adhesive in a new process developed by Armstrong Cork Co. This method, in addition to eliminating the need for sleepers, is reported to result in a more secure floor.

This development is said to have special significance in the textile industry where sleepers are imbedded in asphalt or concrete with plank subbase nailed to the sleepers and maple flooring nailed to the planking. Asphalt has undesirable dimensional changes, and sleepers imbedded in concrete are difficult to replace if rotted.

Special adhesive cements subflooring to concrete, eliminates need for sleepers

The use of the new adhesive forms a moisture barrier between the concrete and the wood as well as anchoring the planking. Armstrong Cork Co., Lancaster, Pa.

STEEL DOOR FRAME

An all-welded, interior-exterior steel door frame for residential or commercial use, now in production, is said to be warp-proof and to combine durability and fire resistance with economy of cost and installation.

The frame, shipped as a complete unit, is made with extra reinforcement in all corners of the mitered joints, a completely enclosed deep dust box, and universal adjustable brass strike plate. Frames are shipped with a spreader bar at the bottom for protection.

Each frame is clearly marked as to size, jamb depth and swing, and is designed for 1¾ and 1⅜ in. doors. When required, exterior frames are provided with screen door hinges. The Steelcraft Mfg. Co., Rossmoyne, Ohio.

COMBINED ELECTRIC RANGE, WATER HEATER

Included in a combination electric range and water heater are two full-sized cooking units, a 220 v roaster-baker, an auxiliary outlet operating on 110 v, and a 30 gal. water heater automatically controlled by adjustable thermostats.

(*Continued on page 196*)

FOR
friendly weather and functional interiors...

Only the imagination of the designer limits the adaptation of the Win-Dor System of Jalousie Hardware in an infinite number of beautiful and practical plans for living areas.

New Use For Glass

Here is the modern method of handling light and air... broadening the architect's scope . . . a practical solution for the protected outdoor living room with clear or obscure glass slats. Glass louvres are easily and conveniently operated and have integral weatherstripping.

Indoor Jalousie Benefits

In temperate climates where summer is most keenly enjoyed, Win-Dor Jalousies and Jalousie doors supplant solid partitioning with ventilated walls and doors. Positive operating control. The same superior mechanical system also available for Jalousie windows and doors with wood slats.

See the WIN-DOR Catalog in Sweet's 18F/1 and write us

Good wood casements again available, are most efficient with WIN-DOR Casement Hardware.

Automatic door closing is at its best with the "automatic hand" — the WIN-DOR Snugger.

★

CASEMENT HARDWARE CO. • 406 N. Wood St., Chicago 22, Ill., Dept. J

Gentlemen:

I would be interested in receiving detailed information on the following:

Win-Dor Jalousie Hardware ☐ Win-Dor Casement Hardware ☐
Win-Dor Snuggers ☐

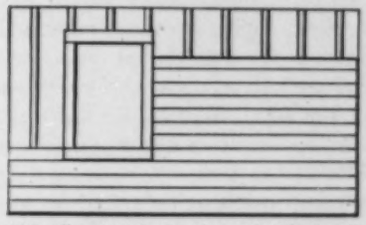
Name.....

Title.....

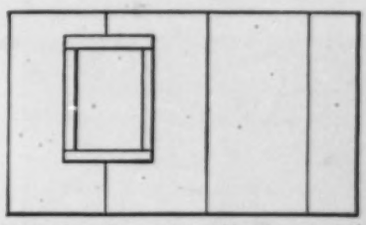
Address.....

City.....Zone.....State.....

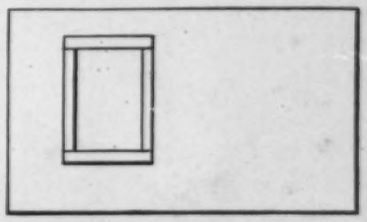
How many operations to sheathe one wall?



With 6″ material—16 pieces in 8′ of wall height



With 4′ x 8′ material—3½ pieces in 14′ of wall length



With 8′ x 14′ material—one piece covers 112 sq. ft. You handle many fewer pieces of material and drive several hundred fewer nails.

FOR APPEARANCE...Homasote Big Sheets insulate and cover the average wall in one piece, ceilings in two pieces. You have no batten strips, fewer wall joints...and the ideal base for paint or wallpaper . . . FOR STRUCTURAL ADVANTAGES . . . Homasote Big Sheets mean greater strength...As sheathing, for example, Homasote Big Sheets are 272% stronger than conventional horizontal wood sheathing . . . And with many fewer joints, the insulating value is far higher.

SEE OUR CATALOG IN SWEET'S

up to 8′ x 14′

We invite architects and builders to send for illustrated booklet—giving physical characteristics, performance charts, specification data and application instructions.

Weatherproof

HOMASOTE

INSULATING AND BUILDING BOARD

HOMASOTE COMPANY, TRENTON 3, NEW JERSEY

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

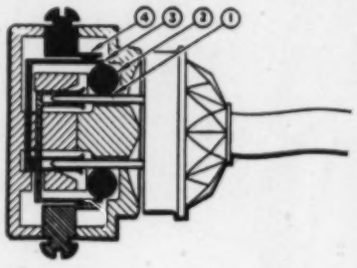
(*Continued from page 194*)

The unit is compact, measuring 34 in. long, 36 in. high (cabinet height) and 21 in. deep. Piping is concentrated and is reached for installation and service through a large, removable access panel on the front. Water pipe connections can be made with piping coming through the floor into the cabinet or entering through the rear from the wall. Provision is made for pressure and/or temperature relief valve. Waldorf Heater Co., 1421 Chestnut St., Philadelphia 2, Pa.

ELECTRICAL RECEPTACLE

A new safety-type, electrical wall receptacle has been engineered to reduce the possibility of accidental shock and burn caused by the insertion of small metal parts, such as knife blades and wires. The *Hubbell SP-49 Receptacle* operates in the conventional manner, except electrical contact is made only when standard or polarized plugs are inserted.

The heart of the unit consists of four insulated rollers, two of which have to be engaged simultaneously to energize the unit. The rollers are located in a manner to prevent activation with metal objects other than the standard cap.



Safety-type wall receptacle is designed so that just conventional plugs will actuate rubber rollers, thus making contact

Designed to permit speedy installation is a strip gauge on the back which shows the exact amount of insulation to be removed. Harvey Hubbell, Inc., Bridgeport, Conn.

NON-METALLIC SHEATHED CABLE

Time required to prepare non-metallic sheathed cable for stripping is reported cut 80 per cent with the improved *Glazon Triex* cable. The Triex construction eliminates the customary individual wrapping over each wire, and instead of 2/64 in. rubber insulation on smaller sizes (14 and 12), 4/64 in. thickness is now applied to the tinned copper conductors.

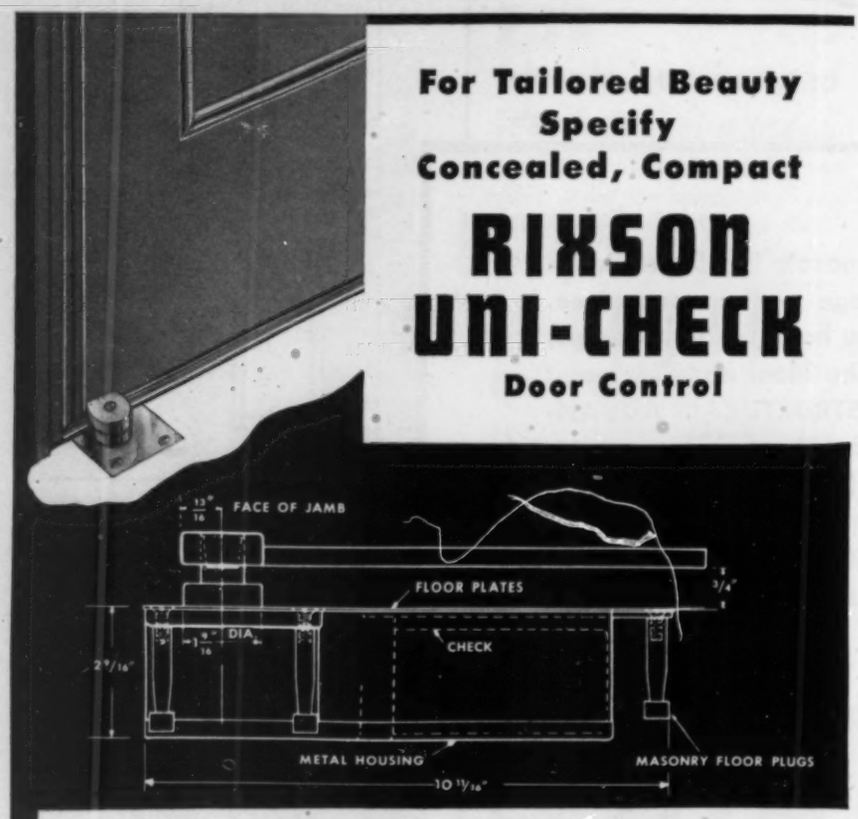
Advantages claimed are: greater tensile strength, smoother finish, greater moisture resistance, greater dielectric strength, greater impact resistance, further protection from fungus and rot, and increased resistance to fire. Triangle Conduit & Cable Co., Inc., 1923 Jersey Ave., New Brunswick, N. J.

GAS-FIRED HEATER

Designed to fit in the walls of tourist cabins is a gas-fired *Radiant Panel Heater* which combines warm air circulation with radiant heat. A "ruffled" porcelain enamel front has been designed to increase the radiating capacity. The heat exchanger is separated from the wall and cabinet front by multiple air spaces for increased efficiency and safety.

The Bryant heater is 5½ in. thick, and is said to require a minimum of floor space. It is available in ratings of 15,000, 20,000 and 25,000 Btu input.

(*Continued on page 198*)



For Tailored Beauty Specify Concealed, Compact

RIXSON UNI-CHECK

Door Control

For Any Interior Door—at a Cost Comparable to Ordinary Treatment

Wherever self-closing doors are convenient or necessary, the Rixson Uni-Check is chosen by many hundreds of architects and builders for its clean-cut, functional design and quiet, automatic operation.

In four spring capacities, the Uni-Check is suited to any interior door, wood or metal—permanent partitions as well as main doors.

Note the compact width and depth of this sturdy unit. Only six movable parts. The door is mounted directly on the Uni-Check. The top pivot is offered in cast bronze or malleable iron or with ball bearing. Automatic hold-open device available.

For a concealed interior door control *anywhere,* consider the Uni-Check.

Special problems of installation will receive prompt attention from the Rixson engineering and designing departments.

The Oscar C. Rixson Company

4450 Carroll Avenue, Chicago 24, Illinois • Telephone MAnsfield 6-5050

ESTABLISHED 1900

Sales Representatives in Principal Cities

Architect: Rosario Candela, New York. *Engineer:* Louis d'Antona, New York. *Steel Fabricator and Erector:* Schacht Steel Construction, Inc., New York.

Designed for Good Living

Close to the Henry Hudson Parkway in uptown New York's Riverdale section stands this magnificent new apartment, Riverdale Towers. Faced with red brick, and with its spacious, well-planned rooms tastefully decorated, the structure has facilities for 240 families, in units of 3½, 4½ and 5 rooms. It is 11 stories high, and includes a penthouse and garage.

Riverdale Towers takes its place in the ranks of impressive structures having steel sinews of Bethlehem Structural Shapes.

Bethlehem
STRUCTURAL SHAPES

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

★ BETHLEHEM STEEL ★

ARCHITECTURAL ENGINEERING

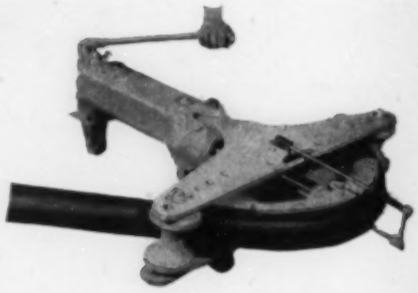
TECHNICAL NEWS AND RESEARCH

(*Continued from page 196*)

The small sizes burn all gases; the larger size burns natural, manufactured and mixed gases only. All models have enameled finish. Bryant Heater Div., Affiliated Gas Equipment, Inc., 17825 St. Clair Ave., Cleveland 10, Ohio.

PORTABLE PIPE BENDER

Now in production is a portable, hydraulic pipe bender designed to handle extra heavy pipe or rigid conduit from 3/8 to 4 in. Semicircular bending formers and an indicator showing the degree of bend are claimed to make the machine fool-proof. Only 15 minutes are required to make 90 degree bends in 4 in. pipe, according to the manufacturer. Changeover from one pipe size to another is said to take only a few seconds. The bender can be set up easily for on-the-spot installation and repair. Tal Bender, Inc., 417 N. Water, Milwaukee, Wis.

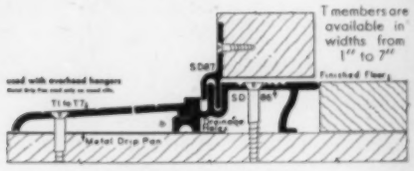


Portable bender takes pipe up to 4 in.

EXTERIOR SLIDING DOOR WEATHER STRIPS

A new line of extruded metal weather strips and saddles has recently been developed to meet the increasing applications of exterior sliding doors and glass walls. The bronze saddles and weather stripping are designed to make possible smooth, efficient operation while providing dependable weatherproof qualities and reducing air infiltration.

The doors can be used either with overhead hangers, or they can slide on concealed bronze sheaves rolling on rigid, extruded, weather-tight bronze floor track. Use of the sheaves is recommended by the manufacturer since this simplifies the problems of both construction and weather stripping.



Extruded metal saddles provide weatherproofing for exterior sliding doors

Saddles are available in raised, semi-flush or flush types. The flush type saddle (flush with both inside and outside floors) was developed to accommodate the rolling of chairs, beds, etc. from a room to a covered porch.

Accurate Metal Weather Strips are available in a number of types to meet the peculiarities of particular door constructions. Accurate Metal Weather Strip Co., Inc., 215 E. 26th St., New York 10, N. Y.

LAVATORIES WITH FOOT PEDAL FLOW CONTROL

Two new models in the *Crane* line of vitreous china lavatories utilize a foot pedal control for regulating the flow of water, thus providing water-saving and convenience advantages. These lava-

(*Continued on page 200*)

MELROSE SCHOOL
MIAMI, FLORIDA
August Geiger, *Architect*
"Air conditioned" by nature and Gate City Awning Windows

EFFICIENT YEAR-ROUND CLASSROOM VENTILATION
at Ordinary Window Cost

• Minds stay alert when classroom air is fresh and circulating. By specifying Gate City Awning Windows, you can provide maximum ventilation plus scientific control at extremely moderate cost.

Hinged at the top to extend outward, the sash intercept the outdoor currents of air. Deflected indoors, these currents agitate the air mass at the ceiling . . . prevent the room from becoming stuffy. In addition, Gate City Awning Windows also offer complete glare and heat control by providing positive mechanically controlled positions with various types of glass. Rigidly constructed of wood, Gate City Awning Windows cannot rattle, flutter or squeak. Their operating handle may be detached to prevent tampering. Their design discourages any desire to lean out.

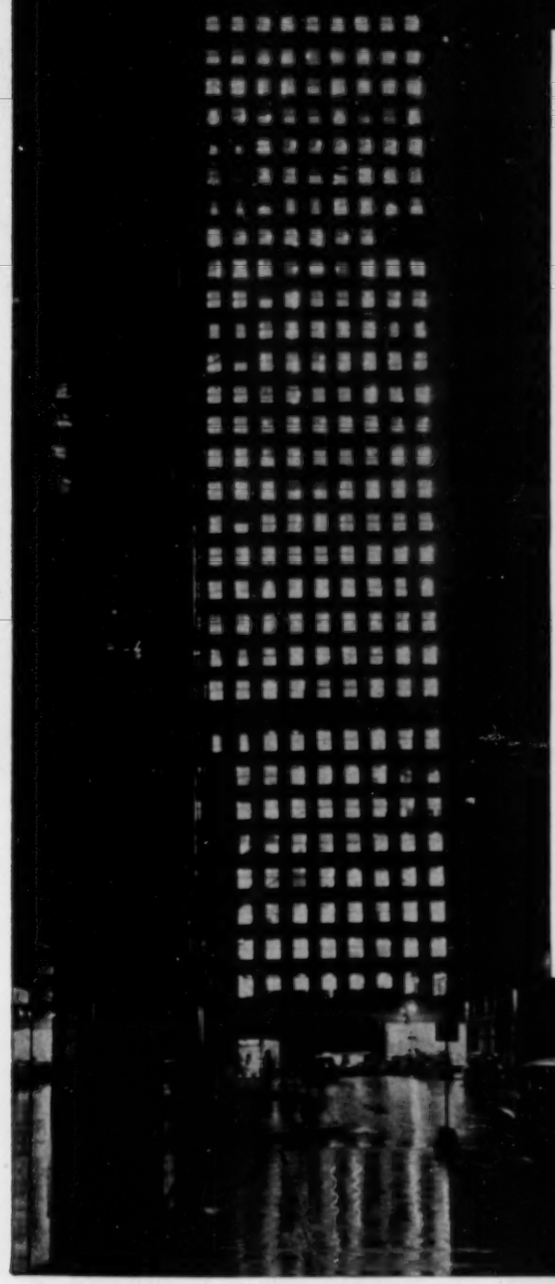
Despite these important advantages, Gate City Awning Windows compare favorably in cost with conventional windows. They deserve careful consideration for any school or church.

For further information, write Gate City Sash & Door Co., Dept. R-6, Fort Lauderdale, Fla., or see Sweet's.

AWNING WINDOWS BY
Gate City

Offices and Factory: Fort Lauderdale, Florida • Export Sales Representative: Frazar & Company, 50 Church Street, New York 7, U.S.A. • Cable Address: Frazar, N. Y. • Agents in principal cities throughout the world.

WHY A WELL PLANNED LIGHTING INSTALLATION NEEDS CORNING ALBA-LITE



Well planned fluorescent lighting results not only from the design and location of fixtures but also from the proper use of lighting glassware. Corning ALBA-LITE deserves special recognition for its qualities of diffusion and brightness control.

It diffusely transmits 60 to 65% of the light and diffusely reflects 25 to 35%, making its efficiency greater than 90% (the sum of reflection and transmission). This combined with even transmission and low panel brightness makes it adaptable to almost any type of fluorescent installation.

All these qualities are contained in a thin glass panel which permits shallow fixture construction, whether in fixtures or in complete ceilings. Cleaned easily, ALBA-LITE does not retain finger prints and resists weathering. It will not warp, discolor or scratch, regardless of the length of time in use. Add this to sound lighting qualities and you get efficient lighting performance.

Bulletin LS-17, now available, describes how ALBA-LITE is used for direct, semi-direct, semi-indirect lighting and completely luminous ceilings. It also covers Corning's complete line of Engineered Lightingware. You should have a copy if lighting is one of your responsibilities.

ALBA-LITE is used on almost every floor of the Esso Building, New York City; Architects: Carson & Lundin; Lighting Engineers: Pollak & Grieve; Fixture Manufacturer: Caldwell & Co., all of New York City.

CORNING means research in GLASS

PYREX T.M. REG. U.S. PAT. OFF.

CORNING GLASS WORKS, DEPT. AR6, CORNING, N. Y.

Please send me your Data Book LS-17, "Corning Engineered Lightingware," describing MONA-LITE, ALBA-LITE and other Corning products.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

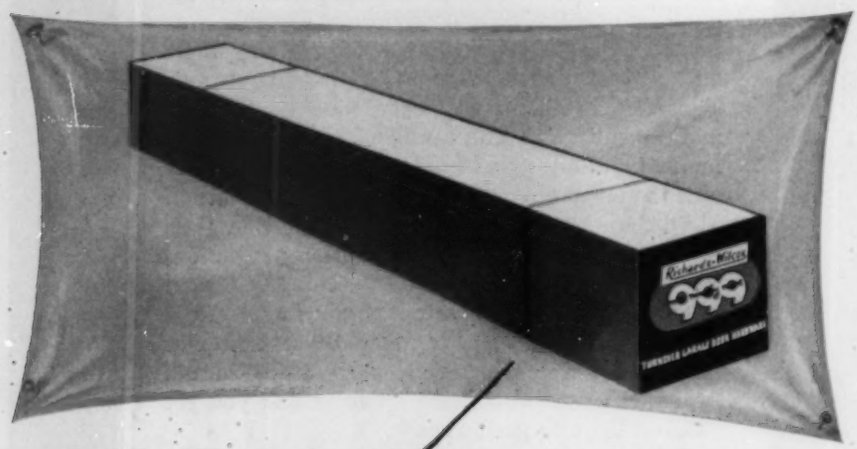
(*Continued from page 198*)

tories are especially applicable for use in industrial, commercial and institutional buildings where it is important that water be automatically turned off when not in use.

A hand valve mounted on the top shelf of the lavatory makes it possible for the user to adjust the temperature of the running water.

Water is supplied through a single spout which is equipped with a spray fitting to prevent splashing. A pop-up plug, with operating handle at the back of the spout is included so that the basin may be filled if desired.

The *Lavalux*, 18 by 15 in., is a flat-back unit for wall mounting. The *Sanicor*, 17 by 17 in. overall, is a space-saving corner lavatory. Both are available in white or in a variety of colors. Crane Co., 836 S. Michigan Ave., Chicago 5, Ill.



Best Seller this Summer

NEW RICHARDS-WILCOX 999 GARAGE DOOR HARDWARE

Get started now! Check your garage door prospects and start selling them the advantages of converting out-dated swinging doors to modern overhead doors with Richards-Wilcox Garage Door Hardware. Comes complete. Packed in one convenient carton. Easy to handle. Includes all hardware needed for installation and operation. Can be easily and quickly installed by the customer.

Backed by over 69 years of experience and engineering skill in the design and manufacture of all kinds of door hardware, Richards-Wilcox 999 Garage Door Hardware is one of your best bets for a profitable summer.

For further information, please telephone, write or wire our nearest office, today.

Richards-Wilcox Mfg. Co.
"A HANGER FOR ANY DOOR THAT SLIDES"
AURORA, ILLINOIS, U.S.A.
Branches: New York Chicago Boston Philadelphia Cleveland Cincinnati Washington, D. C. Indianapolis St. Louis New Orleans Des Moines Minneapolis Kansas City Los Angeles San Francisco Denver Seattle Detroit Atlanta Pittsburgh

1880 RICHARDS WILCOX R&W AURORA 1949
OVER 69 YEARS

FLUORESCENT LUMINAIRES

Designed to combine maximum lumen output and minimum brightness ratios with economy and ease of installation, the *Monroe* fluorescent luminaires give both downward and upward light distribution and have 35° crosswise and 25° lengthwise shielding.

The units, which are available in three models, have one-piece, removable louver-assemblies that allow easy access to wiring channels for installing. They may be ceiling or pendant mounted individually or in continuous rows.

The luminaires, available with aluminum side panel, plastic side panel, or in all steel, are 48 in. long, 12½ in. wide and 5 in. deep. Pittsburgh Reflector Co., 402 Oliver Bldg., Pittsburgh 2, Pa.

ROOF CONSTRUCTION AID

An inexpensive new instrument made of Vinylite rigid plastic has been devised for quick and accurate calculation of lengths and cuts of all roof rafters.

Exact readings for lengths and angles of the various kinds of rafters required are produced at arrows on the diagram face of the instrument by merely setting two dials.

The instrument is said to make it possible also to design a roof with any pitch from 14 degrees to 57 degrees as well as the standard pitches and converting angles in degrees for marking on the carpenter's square.

The instrument is less than 1/16 in. thick, measures 6¼ by 8¼ in. and weighs less than 2 oz. Edward Weyer, 40 W. 77th St., New York 24, N. Y.

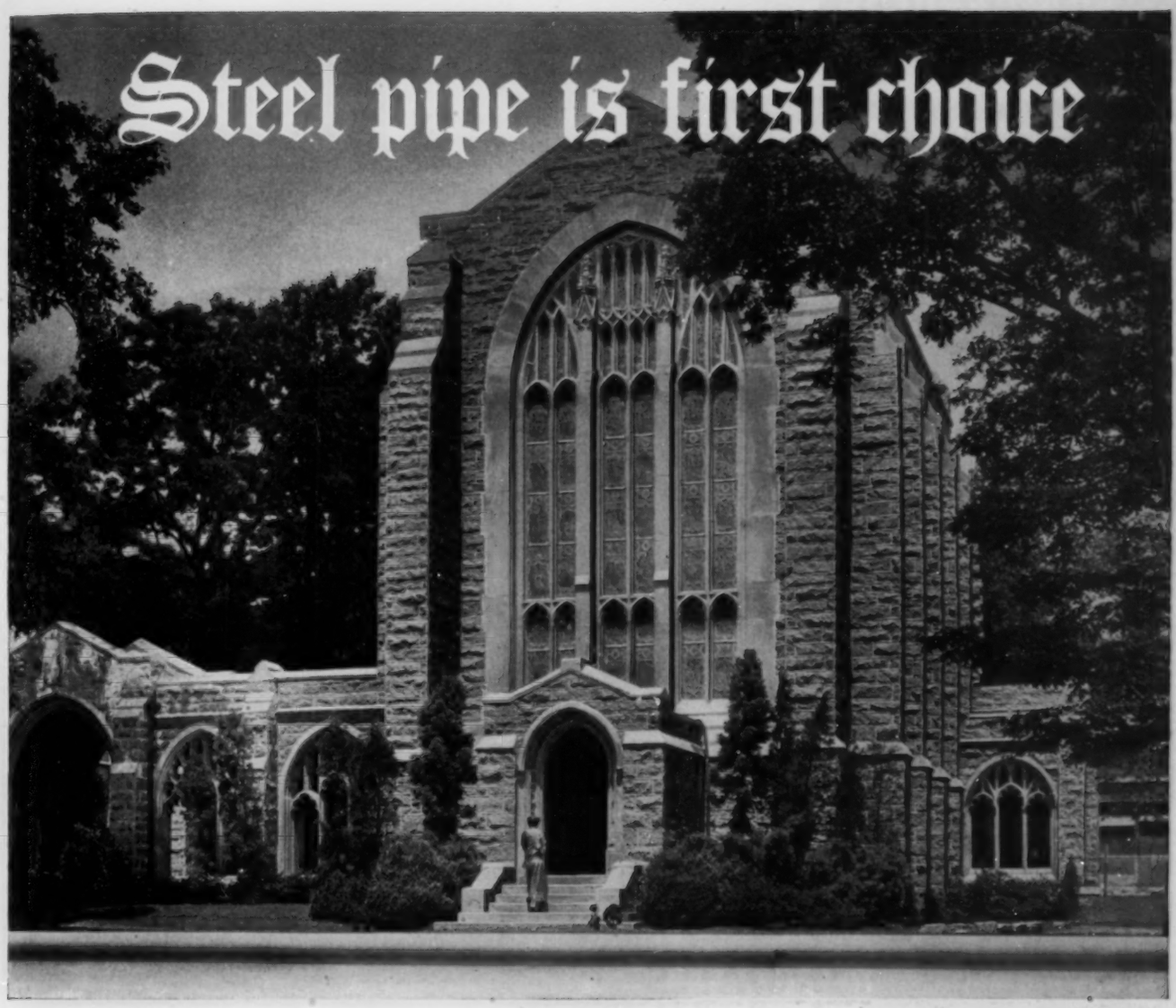
GLASS BLOCK FOR CLASSROOMS

Designed especially for school classrooms in those parts of the country which have the greatest sunlight, is a new type of prismatic glass block. Known as *Insuluz Glass Block No. 352*, it is said to make possible lower brightness contrasts than any other fenestration material now available. The manufacturer reports that the new block is particularly effective in the brightest sun exposures, and is recommended for schools and other public buildings in such states as California, Texas and Arizona. American Structural Products Co., Toledo 1, Ohio.

COUNTER-TOP LAVATORIES

Two new lavatories for use in bathrooms, powder rooms and bedrooms are especially designed to fit into counter tops, whether they are tile, linoleum,

(*Continued on page 202*)



for the churches of America

There are 253,762 churches in continental United States with nearly 74 million members. Their presence in every city and town, and in hamlet and countryside across the nation, is a tribute to the essential morality of Americans.

Into these temples of worship we have poured the richness of the architectural inspiration of the past and present, so that today the white spire of a country church or the majesty of a gothic cathedral represents the finest creative efforts of the men who build.

Beyond the structural elements of steel and concrete, brick and stone, attainment approaching perfection has been assured by today's high standards of materials. Not the least of these is *steel pipe*, helping to make each church a comfortable place in which to worship, through adequate heating, plumbing, lighting, and ventilation. For these services *steel pipe* has a dominant place because *steel pipe* is durable, adaptable, serviceable, and economical.

In fact, of all pipe used for plumbing and heating purposes in all types of structures, steel pipe predominates by a wide margin. Yes, *steel pipe is first choice!*

Ask for your copy of the interesting story "Pipe in American Life."

COMMITTEE ON STEEL PIPE RESEARCH OF AMERICAN IRON AND STEEL INSTITUTE

350 Fifth Avenue
New York 7, N. Y.

(*Continued from page 200*)

glass, formica, wood, or other materials.

Both the *Marcia* and the *Elayne* have semi-oval basins of vitreous china (available in colors as well as white) and chromium-plated brass controls, and both have positive lever-action waste control.

The Marcia, which has a raised angle panel to place the controls in a convenient position, measures 24 by 21 in. overall; the Elayne, with chrome-plated handles and spout mounted on slightly raised portions at the back, measures 27 by 20 in. overall.

These lavatories are especially recommended for a powder room or for use in a bedroom, perhaps as part of a built-in dressing table, to help cut down morning bathroom conflict and as a convenience in the event of illness. Crane Co., 836 S. Michigan Ave., Chicago 5, Ill.

ANOTHER MODERN SCHOOL

Pitcher School, Detroit, Michigan. Bradley Wall-Type Washfountain Installation.

George D. Mason & Co. *Architects.* Farrell & White, *Engineers.*

INSTALLS BRADLEY WASHFOUNTAINS

Sanitary Bradley Washfountains are used in all kinds of schools—public, parochial, and private; from kindergartens to colleges; in washrooms, classrooms, shops and cafeterias.

Bradleys provide the finest in health protection with automatic FOOT-CONTROL, self-flushing bowl and easy-to-clean sprayhead. Each student is provided with an individual ever-clean spray of pure running water and hands are kept free from contagious faucet or washbasin contacts.

Bradley Washfountains come in 54″ and 36″ circular models serving 10 and 6 students respectively and in two sizes of semi-circular models for 3 or 5 students. Illustrated Catalog 4701 gives full information on the complete Bradley line.

Write for your copy to BRADLEY WASHFOUNTAIN CO., 2227 W. Michigan Street, Milwaukee 1, Wisconsin.

Distributed Through Plumbing Wholesalers.

BRADLEY washfountains

STEEL-WOOD LOCKERS

A new line of *Steel-Wood* lockers makes use of both steel and Masonite: the lockers have steel framework and doors; all other parts are steel reinforced Masonite. Steel parts are finished in green enamel, and the Masonite is its natural brown color. They are made in both single and double tiers in all standard sizes.

Recessed handles feature satin chrome finish, and are designed to accommodate number plates. Lyon Metal Products, Inc., Aurora, Ill.

DISINFECTANT CEMENT

Patents have been reported obtained by the North American Cement Corp. for a disinfectant hydraulic cement. While bacteria are claimed killed on contact, the concrete is said to be non-toxic to animals or humans. The product is described as being mixed in the same way as Portland cement and as having the same physical attributes. North American Cement Corp., 41 E. 42nd St., New York 17, N. Y.

SANITIZED DRYERS

Hamilton Automatic Clothes Dryers are now equipped with an ultra-violet light, *Sun-E-Day Lamp*, which is reported to sanitize clothes as they dry. In addition to germ-killing radiation, the lamp gives off a second type of ultra-violet radiation which is said to freshen clothes and prevent staleness in the dryer when not in use. The lamp is shielded to direct all radiation into the dryer and to prevent exposure to the operator's eyes. Hamilton Mfg. Co., Home Appliance Division, Two Rivers, Wis.

ADJUSTABLE SPOTLIGHT

Adjust-O-Spot, a new adjustable spotlight which has Underwriters' Laboratories approval, is small and compact, rotates 360° in any direction, and tilts to 27° on the vertical.

Completely wired and supplied with plaster frame, the spotlight takes either an R-40 or a PAR-38 lamp.

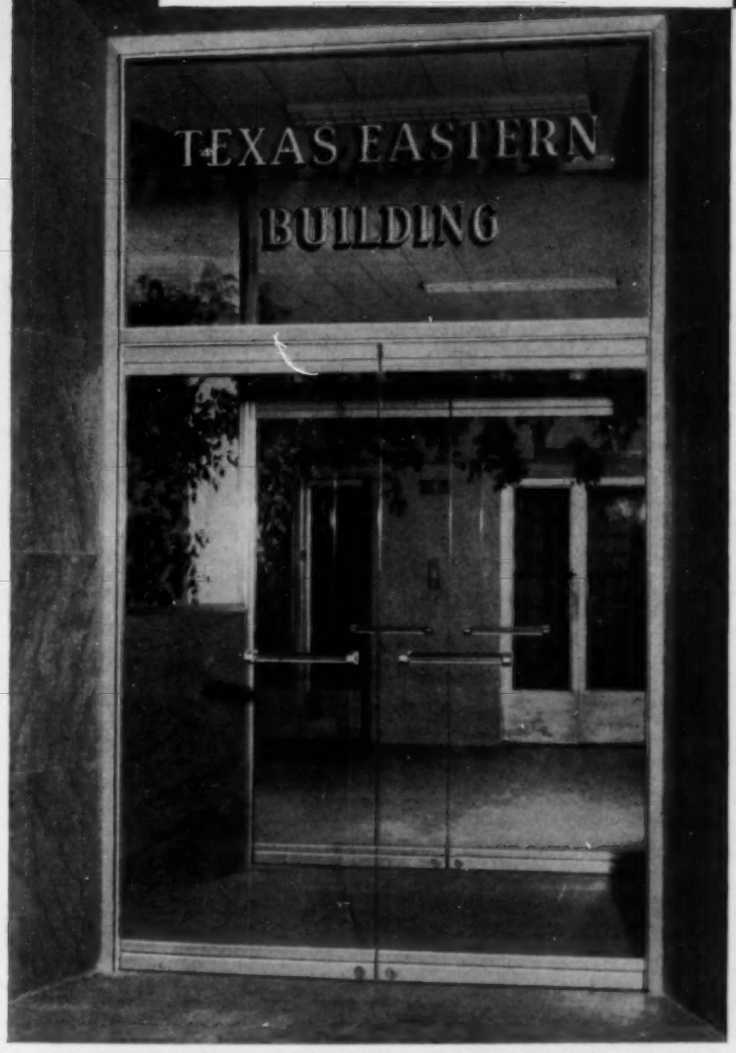
Adjust-O-Spot comes in brushed satin chrome finish or in colors. Louver and heat-resisting glass color filters are available. Litecraft Mfg. Co., 135 Rome St., Newark, N. J.

DISHWASHER-DISPOSAL UNIT

The *Timesaver Sink* combines a water-powered dishwasher and a disposal unit in a 48-in. wide steel cabinet. It is equipped with a porcelain work surface,

(*Continued on page 204*)

EASY TO SPECIFY— EASY TO INSTALL



Architects: Neild & Somdal, Shreveport, La.

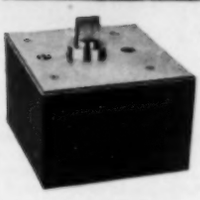
. . . that's why architects favor "Pittsburgh's" factory-assembled door-frame

UNTIRING research into ways and means of helping to solve architectural problems actually encountered in the field was responsible for the creation of this revolutionary prefabricated door-frame assembly. Its ease of specification and installation—as well as its uniform excellence of performance in service—appeal to every architect. All you do is indicate the name—"Herculite Door-Frame Assembly"—and provide the style number and size. It reaches the job completely assembled and with everything needed for its immediate installation, including the famous Pittco Checking Floor Hinge, moldings for transom glass, supports for sidelights, strikes for locks, sockets for bolts.

"Pittsburgh's" Herculite Door-Frame Assembly is a handsome, simply designed and sturdily constructed unit. The frame is factory-built of special shapes and of heavy extruded aluminum, heavily reinforced with structural steel. It's built to high quality standards by expert craftsmen who use special checking gauges to make sure that all dimensions are absolutely accurate.

There's much more to the story. So why not fill in and return the coupon for our interesting and informative booklet? It's free and you're under no obligation. Do it now.

HERCULITE
DOOR-FRAME ASSEMBLY



This Pittco Checking Floor Hinge is an engineering triumph. Only 6¼" x 6¼", it provides positive door speed control, separate checking control, built-in hold-open feature. It's sealed in oil for life. Case and cover are drop-forged. Main working parts are hardened and ground tool steel. Bearings are anti-friction precision-ground.

Handsome, rugged construction is indicated by this sectional view. Note extra-heavy extruded aluminum, highly polished and anodized; also steel channel and tie rod reinforcement.

Pittsburgh Plate Glass Company
2158-9 Grant Building, Pittsburgh 19, Pa.
Without obligation on my part, please send me a FREE copy of your booklet on "Pittsburgh's" factory-built Herculite Door-Frame Assembly.

Name.....

Address.....

City..... State.....

PPG

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY

(*Continued from page 202*)

four access doors, full base shelf, mixer faucet and spray attachment. The new sink-combination has been designed for easy installation, requiring minimum connections, either in new construction or as a modernization unit in existing homes.

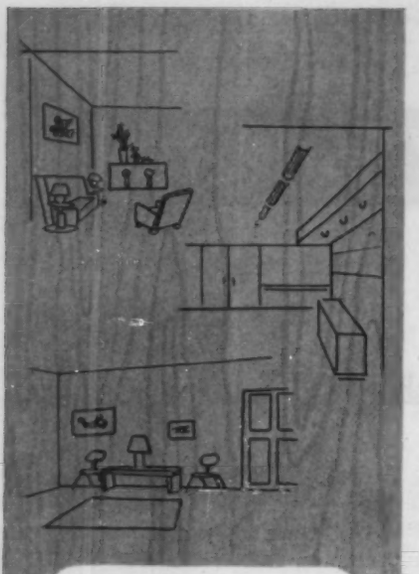
Timesaver Sink is 48 in. wide, 36 in. high to work surface, and 25 in. deep, and has a 4-in splashboard. The top assembly, of porcelainized steel, contains a sink 19¼ in. long, 16¼ in. wide and 8 in. deep. The dishwasher, mounted on the right-hand side of the cabinet, is fitted with a porcelainized steel lid which is set flush with the working surface to provide maximum counter space when the lid is closed. The white baked-enamel cabinet has a black recessed base. Kaiser Fleetwings Sales Corp., Kaiser Bldg., 1924 Broadway, Oakland 12, Calif.

COOLING TOWER

Greater simplification in design, compactness and versatility are advantages claimed for the *Acme Induced Draft Cooling Tower*. These are apparent from such features as: (1) fan housing adjustable on the job for either horizontal or vertical discharge; (2) manifold connections on all four sides; (3) 5-ton unit occupies space of only 35 by 35 by 69 in. Other features include a centrifugal fan which permits long runs and the travel of air and water in counter flow. The cooling tower is available in 5-, 10-, 15-, and 20-ton sizes. Acme Equipment Co., 213 E. Broadway, Muskogee, Okla.

STANDARDS

Commercial Standard for Douglas Fir Plywood (*CS45–48*). Covers the four basic standard grades of veneer, "A", "B", "C" and "D". Plywood grades as made up from these veneers are covered by simplified tables. This revised edition takes up detail requirements for six grades of Exterior type, and seven grades of Interior type plywood. Two new grades have been added in both Interior and Exterior types, made possible by the introduction of the B quality veneer which has a solid surface. Bondage requirements have been made more severe for the Exterior type. Superintendent of Documents, Government Printing Office, Washington 25, D. C. 10 cents.



achieve distinctive interiors at less expense to your client

STAIN AND WAX interior woodwork in one application . . . save time . . . save expensive labor costs! Cabot's Stain Wax penetrates deeply . . . sets up quickly . . . gives plywood paneling and all interior woodwork an easily-cleaned, lustrous wax finish! Your clients may choose from a wide range of attractive colors, including such light shades as Ivory, Silver Gray and White.

Write for color card and complete information today!

SAMUEL CABOT, INC.
622 OLIVER BUILDING
BOSTON 9, MASS.

CABOT'S STAIN WAX

NEW — FASTER-DRYING Sani-Dri

ELIMINATES TOWEL INCONVENIENCE FOREVER!

Modernizes without Structural Changes. Approved by Underwriter's Laboratories for 18 years!

DRYS HANDS OR FACE 25% FASTER THAN EVER BEFORE

Now you can provide 24-hour hand or face drying service in your washrooms, and eliminate your towel problem completely! The new, faster-drying Sani-Dri drys quickly and thoroughly with a stream of hot air, the most sanitary method known. A new heating element and faster-flow nozzle makes it the fastest drying machine of its kind . . . 25% faster than before! Sani-Driers are ideal for modernization of old washrooms or new installations. They have been installed and used in every civilized country and in every climatic condition. They have stood the test of time for 22 years!

SAVES 85% OF WASHROOM COSTS

Sani-Dri pays for itself out of savings. No buying or stocking of towels. No unsanitary litter . . . no fire hazard . . . no paper-clogged soil pipes . . . no servicing of empty towel cabinets —Sani-Dri gives years of continuous automatic drying service with little or no maintenance! Mail coupon for complete information.

USERS REPORT:

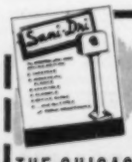
"22 Years of Continuous Drying Service"

"Our 60 Sani-Driers have been in continuous use since we installed them in 1927 and are still giving excellent service. We figure they paid for themselves in less than two years, and have made our washrooms neater and more sanitary at a very low cost."

(Names of Users Sent Upon Request)

Built-in wall model for new installations.

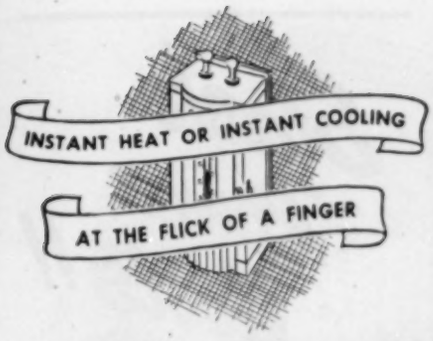
Distributors in Principal Cities



GET THE LATEST FACTS! New brochure 1082 shows both built-in wall and pedestal models of new faster-drying Sani-Dri electric hand and face dryer. Write today!

Distributors in Principal Cities

THE CHICAGO HARDWARE FOUNDRY CO.
"Dependable Since 1897"
8649 Commonwealth Avenue
NORTH CHICAGO, ILL.



Servel *All-Year* Air Conditioning provides

INSTANT COOLING OR INSTANT HEAT

FREEDOM FROM DUST AND DIRT

FOR YOUR CLIENTS' HOMES OR OFFICES

The homes and business structures you design can have added comfort by building your plans around the amazingly different Servel *All-Year* Air Conditioner.

Servel is different because it not only provides refreshing, refrigerated, dehumidified cooling in summer—it also provides draft-free heating in winter. With this one compact unit, your clients enjoy year-round comfort, ideal indoor climate. With a mere flick of a switch, Servel can be changed from heating to cooling in the same day if desired. And relative humidity is always just right.

The Servel unit is economical to operate; it is backed by a 5-year warranty; it enables you to effect many design and construction economies. For complete facts on Servel *All-Year* Air Conditioning, ask your local Gas Company, or write direct to Servel, Inc., 8906 Morton Avenue, Evansville 20, Indiana.

SERVEL *All-Year* AIR CONDITIONER

ONLY SERVEL OFFERS ALL THESE ADVANTAGES

- Draft-free warmth
- Efficient cooling
- Positive dehumidification
- Fingertip control
- Dependable performance
- Filter-cleaned air
- Economical operation
- 5-year warranty
- No moving parts in cooling system

(*Continued from page 154*)

up the importance of painting putty, under what conditions putty can be applied in winter, etc. 10 pp., illus. The Dicks-Pontius Co., Dayton, Ohio.

Glass Block

Adding Value to Apartment Buildings. Illustrates and explains decorative as well as functional uses of glass block in apartments. Contains suggested installations such as in entrances, dining rooms, living rooms, kitchens and bathrooms. Remodeling suggestions are included. 4 pp., illus. American Structural Products Co., Sales Promotion Dept., Toledo 1, Ohio.

Soda Fountain Equipment

Stanley Knight Soda Fountain and Luncheonette Equipment. Describes new line of soda fountains, creamer units, sandwich units, toaster sections, hot food units, shelving and service tables, storage units, back bar equipment, counters and carbonators. New features are illustrated with cutaway drawings. 24 pp., illus. Stanley Knight Corp., 3430 N. Pulaski Rd., Chicago 41, Ill.

Lavatories, Dressing Tables

What's New in the Bathroom. Shows different ideas in using *Formica* in the construction of lavatories and dressing tables, ranging from deluxe designs for hotels to those for low budget homes. A sheet of suggested construction details is included. 5 pp., illus. Formica Co., c/o F. C. Walter, 4941 Spring Grove Ave., Cincinnati 32, Ohio.*

Heating Equipment

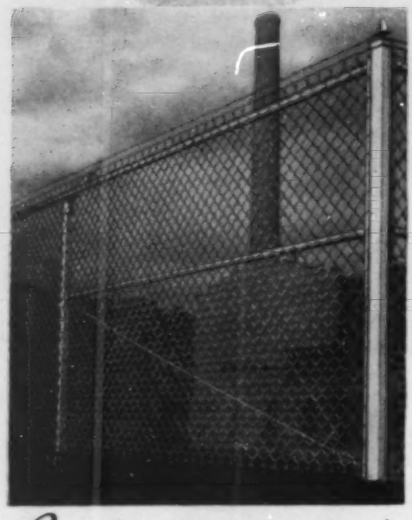
A Million Dollar Heating Idea That's Yours for the Asking. Outlines the operating principles and advantages of a heating system for basementless houses which provides perimeter heating of the floor plus forced warm air heating of the occupied space. The system is designed for operation on either oil or gas. 4 pp., illus. International Oil Burner Co., Spring and Park Avenues, St. Louis 10, Mo.

(*1*) *Unit Heaters* (*Bulletin No. 638A*); (*2*) *Heating Appliances* (*Bulletin No. 634B*). The first bulletin covers the appearance, construction and performance of unit heaters made by Dunham. The second describes three types of unit

(*Continued on page 208*)

Only ANCHOR FENCE gives you

✓ DEEP-DRIVEN ANCHORS
✓ SQUARE FRAME GATES
✓ H-BEAM LINE POSTS
✓ SQUARE TERMINAL POSTS



Specify ANCHOR and be SAFE!

WHETHER you're specifying fence for industrial, institutional or residential jobs, you can rely on Anchor Chain Link Fence to insure lasting fence protection for your clients. For years, leading architects have been writing "*Anchor*" into their fence specs for features like these:

1. *Deep-Driven Anchor*-, which hold the fence erect and in line, in any soil or weather; 2. *Square Frame Gates*, amazingly free from warping and sagging; 3. *H-Beam Line Posts*, self-draining, rust-free and rigid; 4. *Square Terminal Posts*, which improve strength, durability and appearance.

Make sure your A.I.A. File 14-K is complete. Write today for our free, illustrated booklet . . . showing many types and uses of Anchor Chain Link Fence . . . containing structural diagrams and specifications.

Write for your copy to: ANCHOR POST FENCE DIVISION, Anchor Post Products, Inc., 6600 Eastern Avenue, Baltimore 24, Maryland.

Anchor Fence

Nationwide Sales and Erecting Service

Slash Power Costs!!

SPECIFY FUEL OIL AND TODD BURNERS FOR YOUR BOILER PLANT!

You'll be amazed how Todd Burners cut your fuel and maintenance costs. Savings up to 10% . . . increased power capacity can be yours with Todd Burners. In replacement of obsolete equipment or in new installations, skilled specialists—backed by 35 years of Todd experience—engineer your job individually to assure you utmost economy in burning of liquid or gaseous fuels.

Oil Burners
Gas Burners
Combination Oil and Gas Burners

COMBUSTION EQUIPMENT DIVISION
TODD SHIPYARDS CORPORATION
81-16 45th Ave., Elmhurst, Queens, N. Y.

NEW YORK • BROOKLYN • ROCHESTER
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Compare this Metal Door for Appearance . . . for Quality

then look at the price!

Handsomely-styled Fenestra* Standard Stock Metal Doors are designed for the finest buildings. They look expensive. But they're not.

One reason for their low cost is Fenestra standardization. Standardization streamlines production . . . keeps quality uniformly high . . . cost surprisingly low.

You make important savings on installation, too. Insulated Fenestra Metal Doors come complete with frames and hardware.

Installation consists of just 4 simple steps. Bolt the frame together . . . attach the frame to floor and anchor it to walls . . . screw on template locks and hinges . . . hang the door. No mortising, no drilling, no tapping, no prime painting. Time saved. Trouble saved. Money saved.

COMPLETE FENESTRA DOORS ARE AVAILABLE IMMEDIATELY

Fenestra Doors, including those with the Underwriters' B Label, are immediately available from conveniently located stocks. The complete unit — door, frame and hardware — comes carefully wrapped to protect the finish.

For further information, call your local Fenestra Representative (see phone book listing), see Sweet's Architectural File, Section 15a/7, or write Detroit Steel Products Company, Dept. AR-6, 2252 East Grand Boulevard, Detroit 11, Michigan.

*Trademark

Fenestra **STANDARD STOCK METAL SWING AND SLIDE DOORS**

PROTECT LIVES AND PROFITS! SPECIFY...

ONAN EMERGENCY ELECTRIC POWER

MODEL 10EL
10,000 WATTS

Onan Emergency Electric Plants provide power for all essential needs . . .

LIGHTS • REFRIGERATION • VENTILATING SYSTEMS • COMMUNICATIONS • OIL BURNERS • STOKERS • ELEVATORS

* When storms, floods or breakdowns interrupt commercial power, Onan Standby Plants start automatically and take over the power load within seconds, stop when power is restored. Operating and maintenance costs are negligible. Widely used in hospitals and other institutions, radio stations, hatcheries, theaters, industrial plants . . . wherever power interruptions would be dangerous and costly. Available from 1000 to 35,000 watts.

What size Standby Plant will your project need?

Send coupon below for folder on Onan Standby Plants. It will help you specify the right size plant and the necessary accessories. If you have an unusual problem write our engineering department.

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5339 Royalston Ave., Minneapolis 5, Minn.

Onan PRODUCTS

Please send me your Standby Folder

Name.....
Address.....
City.....State.....

ONAN STANDBY POWER

(*Continued from page 206*)

heaters, a full line of cabinet convectors, baseboard convectors, finned radiation, pumps and steam specialties. 14 and 12 pp., illus. C. A. Dunham Co., 400 W. Madison St., Chicago 6, Ill.*

Heil Oil-Fired Automatic Heat. Catalog on a line of automatic furnaces and boilers, including oil and gas fired units as well as gas conversion kits. Operation of the units is described alongside cutaway views of the various models. 12 pp., illus. The Heil Co., 3000 W. Montana St., Milwaukee 1, Wis.*

(1) Baseboard Heating Systems (Guide No. 5); (2) One Pipe Forced Circulation Hot Water Heating Systems (Guide No. 100). Guide No. 5 presents a simple and economical basis for selection and installation of baseboard heaters in a one pipe forced circulation hot water system, two pipe forced circulation, gravity hot water, and two pipe steam. Guide No. 100 contains details for calculating and designing one-pipe systems. Institute of Boiler and Radiator Manufacturers, 60 E. 42nd St., New York 17, N. Y. *50 cents each.*

Hand, Face Drier

Sani-Dri Electric Hand and Face Drier. Describes a new heating element and a flow nozzle on the Sani-Dri, designed to reduce drying time by 30 per cent. Numerous photos show the drier in typical installations. 8 pp., illus. The Chicago Hardware Foundry Co., North Chicago, Ill.

Air Filters

A Comparative Study of Air Filtering Costs in Central Systems. Contains data on the costs of air filtration along with comparative figures on installation and maintenance costs of cleanable and replacement-type air filters. A form is included for calculating comparative costs of a specific installation. 4 pp., illus. Owens-Corning Fiberglas Corp., Toledo 1, Ohio.*

Paint

How to Beautify and Protect Concrete, Stucco and Masonry. Describes need and method of painting concrete, stucco and masonry surfaces. Gives advantages of Portland cement paint and cites various

(*Continued on page 210*)

New SAFETY RECEPTACLE MAKES CONTACT ONLY WHEN STANDARD CAP IS INSERTED

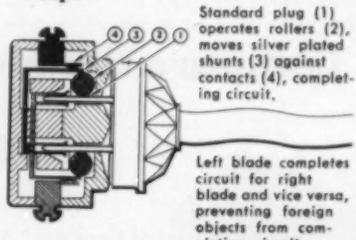
UL

HUBBELL'S SP-49*

The *SAFETY-PLUS Receptacle

Actual tests prove it to be Safest Receptacle ever designed

- **Makes contact *ONLY* when standard cap is inserted**
- **Conventional operation . . . double contact springs**
- **Back or side wired—shallower for more wire room**
- **Takes polarized or standard caps**


4 3 2 1
Standard plug (1) operates rollers (2), moves silver plated shunts (3) against contacts (4), completing circuit.
Left blade completes circuit for right blade and vice versa, preventing foreign objects from completing circuit.

Featuring an entirely new principle, the Hubbell SP-49 Receptacle was designed to reduce the possibility of accidental shock and burn, makes contact ONLY when standard caps are inserted! Pins, wires or other foreign objects cannot energize the unit! The SP-49 provides easier wiring, more wire room, back wiring, washer ears, silver plated contact springs, interlocking bridge and takes standard caps.

HUBBELL

For descriptive literature write

HARVEY HUBBELL, INC.
Dept. A-1 Bridgeport 1, Conn.

WORTHINGTON AIR CONDITIONING REPORT

WORTHINGTON PUMP AND MACHINERY CORPORATION
HARRISON, NEW JERSEY

Specialists in air conditioning and refrigeration for more than 50 years

Clinically-clean Air For Children's Hospital

As you can imagine, the air into which a baby is delivered and in which it passes its first few days must be scrupulously clean and its temperature accurately controlled. Too high a room temperature, for example, invites enteritis (inflammation of the intestines), which is common among babies.

In the Children's Hospital, Cincinnati, Worthington equipment is used to air condition the infants' ward, surgical ward and milk preparation room.

The equipment used for the infants' ward includes two Worthington package units, with hermetically-sealed compressors, to cool, dehumidify, clean, circulate and ventilate. Each occupies only eight square feet, but has a cooling capacity of 5 tons.

No case of enteritis has been reported since the installation was made.

In the surgical ward, which consists of five operating rooms and five auxiliary work rooms, a Worthington package air conditioner with conventional reciprocating compressor and evaporative condenser, is used for the comfort and efficiency of surgeons and nurses and, by humidity control, to prevent the hazard of static spark which exists where there are ether fumes.

Children's Hospital, Cincinnati—equipped with Worthington Air Conditioning

Another 5-ton package unit with hermetically-sealed compressor provides filtered air to the room where milk formulas are prepared.

Engineering and installation by Henry Niemes, Inc., Cincinnati.

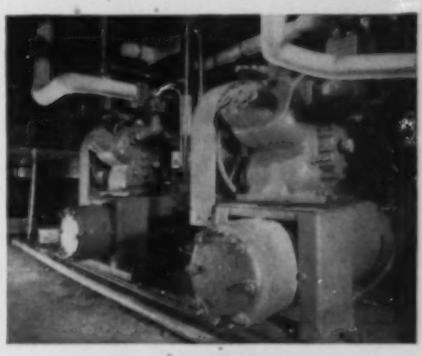
Pampering Paper

In the New York plant of General Aniline & Film Corporation's Ozalid Division, makers of white print and dry developing machines and sensitized papers, Worthington Air Conditioning is used to insure constant temperature and humidity conditions for the processing and storage of the film paper.

The equipment includes two horizontal-mounted central station air conditioners and two Freon-12 condensing units.

The compressors are equipped with automatic capacity control, lightweight automotive-type pistons and Worthington Feather* Valves, lightest, tightest, quietest ever made.

*U. S. Reg. Pat.



Worthington Freon-12 Condensing Units at Ozalid plant

An Ideal Climate For World-Wide Explorations

Much of the exploration in the oil industry—the geo-physical *laboratory* type of exploration—is done by Rogers-Ray, Inc., in Houston, Texas, serving petroleum firms all over the world. In line with providing its staff with the best possible working conditions and to maintain constant air conditions in the laboratory, Rogers-Ray has installed Worthington Air Conditioning.

When the instruments are built, it is necessary to maintain tolerances which are so fine that they could be affected by variations in temperature and humidity. In the main offices, it is important to protect against shrinkage or expansion of blueprint and tracing paper carrying finely detailed drawings.

The engineer, H. E. Bovay, Jr., selected Worthington AHY and AVY central station air conditioners for complete year-round air conditioning. These units are designed essentially for installation remote from the place to be conditioned. Air distribution is handled in the shop building by one 4500 cfm unit, in the office building by two 4500 cfm units and a 2000 cfm unit. These units are sectionally-constructed, permitting ease of handling, inter-changeability and flexibility of assembly. They are served by two Worthington four-cylinder V-type Freon-12 Compressors, both of which are connected to a single horizontal cleanable-type shell-and-tube condenser.

Installation was made by Gregory-Edwards, Inc. of Houston.

Office building of Rogers-Ray, Inc., Houston, Texas

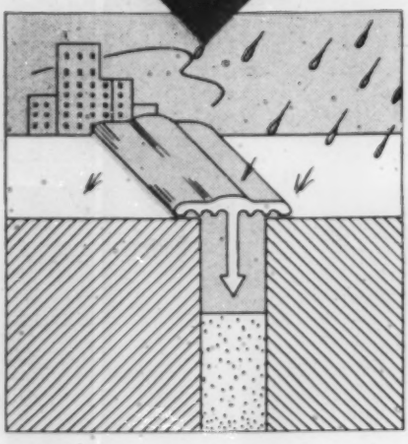
Worthington AVY Air Conditioning Unit at Rogers-Ray, Inc.

WORTHINGTON

AIR CONDITIONING AND REFRIGERATION

A complete line . . . in which *all* the vital components are *made*, not just assembled by Worthington. For *more worth with Worthington*, see your nearby Worthington distributor (consult Classified Telephone Directory).

MASONRY JOINTS Won't leak-



when protected with

TRADE MINWAX MARK

WEATHERCAP

• Installed in coping and cornice joints, etc., on either new or old structures, assures years of weather-tight protection.

SEND FOR YOUR SAMPLE

Minwax Company, Inc.
11 West 42nd St., New York 18, N.Y.

Please send me free sample of Weathercap with descriptive folder and specification data.

Name .....

Address .....

City .....

State .....

AR-6-49

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 208*)

applications. Discusses a new rubber base coating. 8 pp., illus. Medusa Portland Cement Co., Medusa Products Div., 1000 Midland Bldg., Cleveland 15, Ohio.*

Drainage Products

Zurn Building, Plumbing, Drainage Products. Equipment described in this bulletin includes: *cloudburst type* roof drains, *easy level* floor drains, grease interceptors, wall closet fittings and carriers for wall type fixtures. Cut-away views show how Zurn's recently developed floor drains permit quick, easy floor level adjustment without need for resetting. Tables and dimensioned drawings are included. 8 pp., illus. J. A. Zurn Mfg. Co., Dept. Z-7, Erie, Pa.*

Conveyors

Lamson Products. Illustrates a complete line of conveyor devices including the following types: roller gravity, live roll, slat, belt, overhead, vertical and also pneumatic dispatch tubes. Also shown are tray conveyors for continuous handling of foods and dishes. 4 pp., illus. Lamson Corp., Syracuse 1, N. Y.*

LITERATURE REQUESTED

The following individuals and firms request manufacturers' literature:

Basch and Sokoloff, Builders and General Contractors, 1042 Alton Road, Miami Beach 39, Florida.

Architectural and Engineering Services, P. O. Box 5021, Fountain City, Knoxville 18, Tenn.

Ralph E. Cole, Registered Architect, Suite 405, 745 Yates Street, Victoria, B. C., Canada.

Major William A. Hill, MSC, Hospital Construction Branch, Office of the Air Surgeon, Room 4A 310, Pentagon Building, Washington 25, D. C.

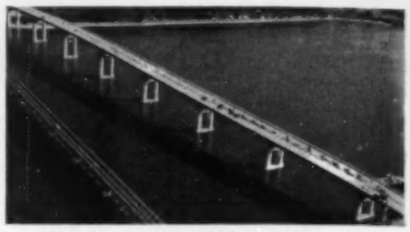
S. Donald Moore, Electrical and Mechanical Engineer, Box 205, Kansas City, Kansas.

Joseph F. Morbito, Architect, 429 E. College Avenue, Kent, Ohio.

Lawrence F. Pratt, Registered Civil Engineer, 231 E. Angeleno Avenue, Burbank, Calif.

Jack K. Vogel, Registered Architectural Engineer, Liberty Theatre Bldg., Wellsville, Ohio.

Radiant heat foils weather on new bridge



New Raymond E. Baldwin Bridge, Old Saybrook, Connecticut. Project Engineer for the State—Col. Howard S. Ives.

Roadway, morning after a storm. Clear sections remained free of snow all during storm; roadway in foreground, though scraped, is still covered with ice patches. Heating Contractor — William M. Ford; Distributor—Marsden and Wasserman.

DISCONCERTED is the motorist who slides through a toll gate on smooth-as-glass ice. A novel radiant heating installation eliminates this menace to motorist, attendant, fenders and toll house on this new bridge.

An oil-fired No. 240 Mills boiler supplies hot water which circulates through pipes embedded in the roadway adjoining the toll booths, melting ice and snow and keeping the roadway clear. The oil burner operates only during icing periods; at other times anti-freeze protects the system.

Usual applications like this prove the versatility and dependability of Smith-Mills boilers . . . and their ability to deliver low-cost heating year after year. Even on the toughest jobs, you're sure of satisfaction when you specify an H. B. Smith boiler. The H. B. Smith Co., Inc., 67 Main St., Westfield, Mass.

H. B. Smith

CAST-IRON BOILERS

Offices and Representatives in Principal Cities

What's New and Different About The Wakefield GRENADIER II and IV?

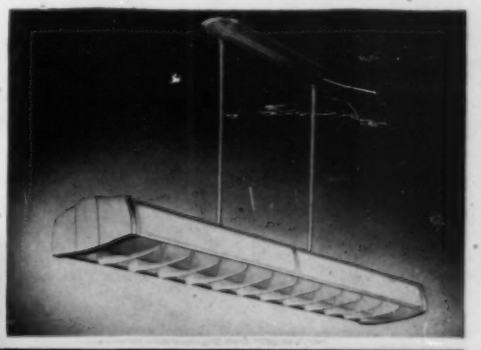
A further standardization of parts applicable to both units has been achieved.

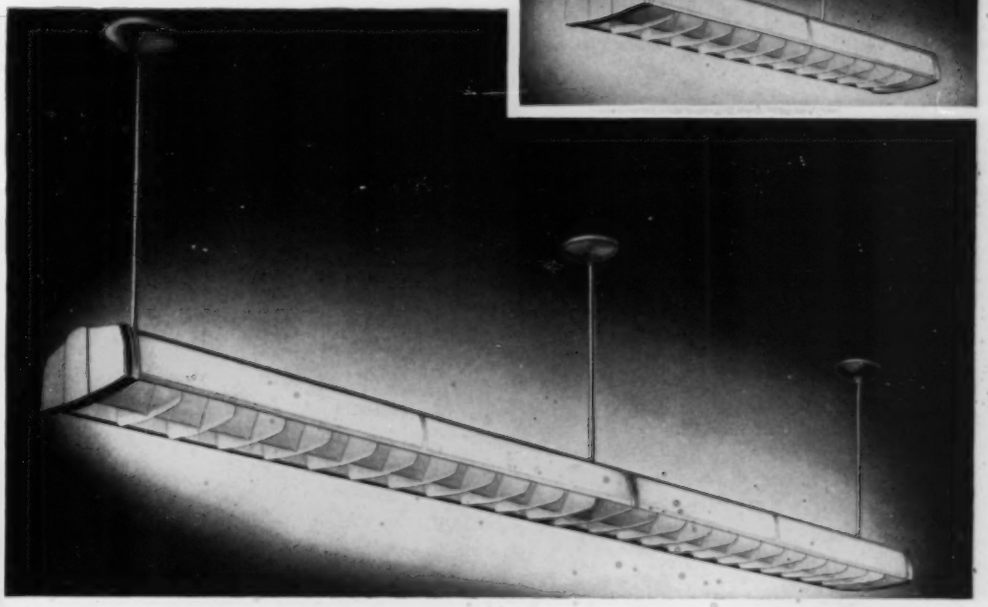
a *All units are now equipped with ETL approved Brick Type Ballasts.*

b *All units are now furnished with identical mounting devices.*

c *Six catalog numbers are eliminated without reducing the models or variety of mountings.*

Distributors may now maintain adequate service from stock with lower investments in inventories.





Grenadier II
in Stem, Canopy and On-Ceiling styles . . using two 40W fluorescent lamps in each 4′ section.

Grenadier IV
in Stem and On-Ceiling styles . . using four 40W fluorescent lamps in each 4′ section.

In classroom, office, drafting room and store installations the Wakefield Grenadier has earned respect for

1 *its ability to provide a highly efficient type of diffused lighting;*

2 *design and construction features which make maintenance and part replacement simple and rapid, resulting in a "low cost of owning";*

3 *the quality and beauty of its construction throughout and particularly of the metal-framed plastic side panels and the soft metallic satin finish of all metal parts.*

To these superiorities must now be added the new benefits of parts simplification noted above. Good news, we think, for all who stock, sell, specify and install the Wakefield Grenadier.

Wakefield **Over-ALL Lighting**

A BASIC CLASSROOM TOOL

THE GRENADIER II

THE COMMODORE

THE STAR

East Side, West Side, All Around Indianapolis

Main Office of Indiana National Bank, Indianapolis. Equipped when originally designed by D. A. Bohlen & Son with Webster Steam Heating System. In 1947, Strong Brothers, heating contractors, modernized the installation by installing Webster Moderator System.

The Indiana National Bank, successor in 1865 to the business of the Indianapolis branch of the State Bank of Indiana, organized in 1834, has been a Webster customer for over 34 years.

Ever since a Webster Vacuum System was installed in the main office building in 1914, Webster Equipment has been purchased, keeping the bank properties abreast of the latest developments in comfort and economy in heating.

In 1947, a Webster "Controlled-by-the-Weather" Moderator System with Outdoor Thermostat was installed in the main office building. Pre-fabricated Webster Convector Radiation with integral supply valve and trap was used.

Webster Systems of Steam Heating are also installed in three recently constructed branch office buildings.

An important factor in the success of these installations was the close association that has existed betwe n bank management under President Russell L. White, Architect, D. A. Bohlen & Son, and Webster Representative, S. E. Fenstermaker.

The story of Webster heating in Indiana National Bank illustrates how Webster serves their customers. Let us help you with your heating.

Address Dept. AR-6

WARREN WEBSTER & CO.
Camden, N. J. : : Representatives In Principal Cities
In Canada, Darling Brothers, Limited, Montreal

Webster HEATING

REQUIRED READING

(Continued from page 30)

UNKNOWN BOSSES

Roof Bosses in Medieval Churches. By C. J. P. Cave, M.A., F.S.A. Cambridge University Press, The Macmillan Company (60 Fifth Ave., New York 11, N. Y.) 1948. 7½ by 10 in. viii + 235 pp., illus. $9.50.

As a relief from the mundane, day-to-day work in the architectural office, either being a boss or being bossed, this book is a delight. It is an excellent study of one of the minutae of ecclesiastical architecture that has escaped the notice of most students or antiquarians. There seems to be an infinite variety of bosses used in the vaulting of English churches, ranging all the way from naive grotesques to sophisticated, foliated and sculptured design. One's mind can wander back through the centuries and wonder what led each of the craftsmen-designers to choose each particular subject.

The author, Mr. C. J. P. Cave, has been studying and taking photographs of carved roof bosses in churches throughout England, and the splendid results of his study are well set forth in this volume. Some 368 photographs of bosses, from a collection of more than 7000, are included as illustrations, and his text is both interesting and enlightening.

Though the height of roof bosses above the ground has made access and study difficult, it has often at the same time preserved them from the destruction, restoration, hard wear, or merely ignorant defacement, which have been the lot of many surviving works of ancient art. In this book, by the help of modern photography, we may now see and examine these hidden sculptures as they left the hand of the carver centuries ago — may see, more clearly in Mr. Cave's photographs than has been possible to any eyes before, a gallery of unspoiled medieval carved work dealing with a great variety of subjects, with biblical, religious, and secular scenes and figures, with beasts, birds, fishes, even insects, and innumerable heads, many of which must have been copied from life. In the foliated bosses, too, with their minute detail, students can trace the changes from conventional to naturalistic style, then to the undulatory leafage of the Decorated period, and finally to the square leaves of Perpendicular work.

All these details had remained for centuries dark and half-hidden until Mr. Cave with his spotlight and telescopic lens brought them down from the roof.

The
RESTORATION *of* COLONIAL WILLIAMSBURG

A Reprint of the December, 1935 Issue of
ARCHITECTURAL RECORD

104 pages, bound in cloth
$2.50 per copy

◆

The Colonial Williamsburg Number of ARCHITECTURAL RECORD — issue of December 1935 — was sold out soon after publication but the entire editorial contents have been reprinted and bound in permanent book form with blue cloth covers.

Many thousands of these Williamsburg reprints have been sold but the demand continues unabated.

. . . . . .

ARCHITECTURAL RECORD
119 W. 40th Street, New York, N. Y.

Enclosed is $.....for which send..... copies of your reprint, *The Restoration of Colonial Williamsburg*, bound in cloth, at $2.50 per copy. *(Add 2% Sales Tax for New York City deliveries.)*

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Address.....

City and State.....A.R. 6-49

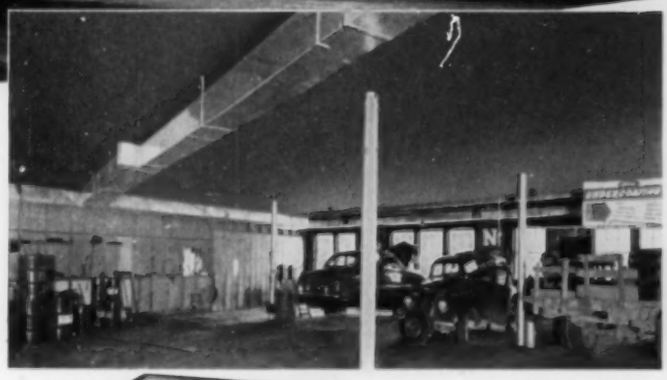
Mr. Lawrence Graves, part-owner of buildings illustrated.*

After 11 years of excellent service....

. . . THIS ENTIRE BLOCK IS STILL HEATED BY FORCED WARM AIR . . .

. . . including a super-market, a department store, an appliance and implement store, an insurance agency, an automobile salesroom and garage, and a seven room apartment.

Building block in Chesaning, Michigan . . . now heated entirely by forced warm air.



Interior of Richards Motor Sales, Inc. showing overhead ductwork.

J &C "PoweRated" furnace, adaptable to stoker or hand firing . . . ideal for commercial buildings of the shopping center class.

"Eleven years ago I took out part of the wet heat system for the block of buildings illustrated, and installed a Jackson & Church stoker-fired warm air furnace with an input of 2,000,000 Btu's per hour. Results were extremely satisfactory and four years ago I scrapped the remainder of the wet heat system and installed another Jackson & Church warm air furnace of the same size as the original.

Our entire block is now heated entirely by forced warm air and we have . . . comfort through those extra features that warm air heat makes possible as well as trouble-free operation at bargain basement fuel costs.

When I replaced our wet heat system with forced warm air . . . estimates for installation of warm air were approximately 25% lower than those for wet heat. Recently I compared fuel bills for the past eleven years with previous fuel costs and I was pleased to find that *our new system saved over 20% in operation costs.*

Needless to say, I am now a warm air enthusiast."

* Statement of Mr. Lawrence Graves on file with Jackson & Church Co.

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